Action plans for boiler & oven replacement campaigns in ten pilot regions

Deliverable D6.1

Project Coordinator: Austrian Energy Agency – AEA

Work Package 6, Leader Organization: REGEA

Task Lead: WIP

March 2021

This project has received funding from the European Union's Horizon 2020 Research and innovation programme under grant agreement No 847087.

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Project coordination and editing provided by Austrian Energy Agency.

Manuscript completed in March, 2021

This document is available on: www.replace-project.eu

Document title	Action plan for replacement campaigns
Work Package	WP6
Document Type	Public Document
Date	31 March 2021
Document Status	Final version 31-03-20211

Acknowledgments & Disclaimer

This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 847087.

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1 | General information

With heating and cooling (HC) comprising 50 % of the final European energy consumption and over 68 % of all gas imports[1], permanently reducing consumption and increasing the share of renewables in this sector is paramount for a successful Energy Union. In particular, the fact that 80 million out of 120 million installed space heating systems in Europe currently achieve an energy label class C or D gives rise to major concern[2]. REPLACE therefore aims to boost the phase-out of inefficient and old heating and cooling systems by targeting consumers, investors/owners as well as intermediaries (installers, plumbers, and chimney sweepers) and helps them to make or support the making of informed decisions.

WP6 is dedicated to the implementation of replacement campaigns, which include activities that shall inform consumers about sustainable heating solutions and motivate them to replace their fossil fuelled or any old, inefficient heating systems. In task 6.1, a tailor-made action plan for each pilot region will be prepared based on the findings of previous WPs. The action plan will define specific activities/measures, time-frame, involved stakeholders and all other necessary details for actual implementation. In addition, a local media cooperation strategy for promoting the replacement campaign will be carried out. The activities/measures will be defined in cooperation with Local Working Groups (LWGs established in WP 5) and summarised in English.

[1] European Commission, 2016, Fact Sheet "Towards a smart, efficient and sustainable heating and cooling sector". (Online) Available: http://europa.eu/rapid/press-release_MEMO-16-311_en.htm#_ftn1 (18.12.2019).

[2] EHPA, 2017, Joint industry letter on EPBD and labelling of the installed stock of boilers. (Online) Available: https://www.ehpa.org/about/news/article/joint-industry-letter-on-epbd-and-labelling-of-the-installed-stock-of-boilers/ (18.12.2020)

2 | Implementation plan

2.1 Action plan activities and measures

Before starting to document the action plans at the ten pilot regions of REPLACE, the local REPLACE project partners needed to define their adapted strategy in alignment with their Local Working Group. According to the Grant Agreement the strategy could be chosen of the following 14 measures (called: activities). Every partner has to implement at least eight of these activities: At least six activities out of the options 1-9 (the first two are obligatory) and of at least two show-cases out of the options 10-14 (at least one collective action) shall be carried out[3]:

1. Policy driven "Energy-saving campaign" with annual labelling for boilers by installers and chimney sweepers and accompanying folder

2. Every beneficiary in lead of a pilot region performs a minimum of six techno-economic feasibility studies (regarding single object supply) for free for end consumers by utilizing the T4.5 "REPLACE Your Heating System Calculator". This sub-task includes a face-to-face visit or a Webinar backed-up with the utilization of the tool and, if required additional phonecalls for each study. A concise standardized report (English model case by AEA) will show the results of the investigations in national languages. Part of the reports will be summary, translated in English too (if households agree to a publication). Publishing of results depends on written agreement of owners of plants assessed. Projects realized during campaigns life may become show cases, upon agreement of the building owners(s). On request partners can alternatively opt for one techno-economical assessment of the establishment of a biomass micro grid (a few existing buildings are connected) based on a tool developed by AEA for the H2020 project Bioenergy4Business. AEA will train partners in utilizing that tool by a Webinar in case.

3. Establishment of REPLACE RHC replacement information hubs operated by beneficiaries or LWG members or other organisations in the target region, offering project flyers, technology fact sheets, handbooks, information on REPLACE offers and activities, etc. publicly accessible in energy advice offices and / or municipal offices

4. Informing consumers about RHC *heating* systems' replacements and related REPLACE offers and activities at large consumer fairs and festivals;

5. Informing consumers about *cooling* systems' replacements and related REPLACE offers and activities at large consumer fairs and festivals; i.e. show alternatives to mobile monoblock air conditioners with exhaust hose(s) like even more efficient devices than the "usual standard" split air conditioners.

6. Labelling-campaign for 100 % renewable heating or cooling – in order to highlight the efforts of heat consumers switching their heat system to renewable energies, a label will be designed which

[3] In alignment with the European Climate, Infrastructure and Environment Executive Agency (CINEA), in charge of Horizon 2020 projects, an adapted set of activities can be implemented in a pilot region, if the LWG is in favor of other or new measures and CINEA gives its approval.

the heat consumers can display on their houses. This shall motivate other consumers to switch their system to renewables, too.

7. Open day/house events regarding best practice RHC systems – in the target region, an open day/house event will be organised. On that day, interested consumers can visit households which have already switched their heating system as well as installers and renewable energy companies.

8. Organisation of regional field trips to best practice RHC systems for consumers / intermediaries / investors – field trips are among the most effective ways of stimulating a technology diffusion process.

9. Performing two to three Webinars on the usage of the consumer-friendly "REPLACE your Heating System Calculator" (T.4.5) to consumers in the pilot region and beyond, advertised in (local) media that are popular with consumers.

10. Facilitating the realisation of supportive (R)H replacement services by mobile heating devices to bridge-over sudden break-downs avoiding a classical lock-in effect towards fossil fuels; realisation of a show-case.

11. Supporting installers and/or energy utilities/service companies to become plant (+ energy efficiency) contractors; realisation of a show case.

12. Facilitating the realisation of innovative collaboration models between installers and plant (+ energy efficiency) contractors, i.e. professional contractor plans and invests, installer is door-opener and sells their equipment and services the plant; realisation of a pilot project for replication.

13. Facilitating the realisation of collective actions; e.g. common purchase of pellets or equipment by municipalities for consumers; PPP on the insulation of the uppermost ceiling of residential buildings; joint purchase of RHC equipment by DH operators or installers; consumers establishing energy cooperatives (for implementation of DH or electricity microgrids, and sharing existing (peak-load) boilers and thermal storages); cooperatives for establishing local biomass micro grids or trade centres, market for households' energy savings in the framework of EED, etc. or of demand-response measures facilitating flexibility in the electricity and/or heat sector, wherever technically applicable and viable (e.g. power to heat or for making HP smart grid ready for collective demand-response measures in the electricity sector); realisation of a show-case.

14. Facilitating the implementation of innovative TRL6 multi-functional façade systems for thermal refurbishment of an existing residential building or implementation of TRL6 phase change materials for shifting cooling loads into the night, realisation and dissemination of a show/pilot project.

Five additional actions were considered in the progress of the REPLACE project. They will be implemented in Austria, Bulgaria, Bosnia-Herzegovina, North-West Croatia and in Slovenia:

15. Phase-out fuel oil marketing campaign. The phase-out fossil fuels marketing campaign will support the implementation of all other Replace campaign activities. It is planned that the campaign includes news about the Project, the results of actions, but also examples of good practice, successful implementation and experience of users from Salzburg

16. All-round carefree packages for boiler replacement. A solution to the manifold problems when a heating system needs to be replaced might be all-round carefree packages (ArCFP), which should remove essential barriers that households face when switching from fossil fuels to renewable energy sources or district heat. These barriers include the need for information on the choice of technology, the funding system and decision-making, the complexity of the implementation, and important issues such as affordability and financing.

17. Exploitation, integration and dissemination of financing and affordability issues is planned as a threefold approach, including the invitation of banks to provide offers for end consumers or the all-round carefree package, dissemination of new offers by the Federal Climate Ministry of Austria, and the dissemination of any offers related to financing and affordability that will exist or developed to target groups via consultations and marketing measures on both, (potential) providers' and end consumers' side.

18. Information evenings on municipal level regarding replacing oil and gas boilers by climate-friendly solutions.

19. Innovative alternative or additional boiler or oven replacement activities can be found also in Bosnia-Herzegovina (Activity 7), Bulgaria (Activity 9 and 10), North-West Croatia (Activity 1 and 7), and Slovenia (Activity 9).

Following, a matrix shows which activities and measures were chosen by the REPLACE project partners.

Table 1: Overview about selected activities

	Activity/target region	AT	BG	BiH	HR1	HR2	DE	NM	RS	SL	ES
1	Policy driven "Energy-saving campaign" with annual labelling for boilers					X	X	X		X	X
2	Six techno-economic feasibility studies		X	X	X	X	X	X	X	X	X
3	REPLACE (R)HC replacement information hubs		X	X	X	X		X	X	X	X
4	Heating systems replacements information at consumer fairs and festivals		X	X	X	X				X	X
5	Cooling system replacements information at consumer fairs and festivals		X								
6	100 % renewable heating or cooling labelling campaign			X			X	X	X	X	X
7	Best practice RHC systems open day/house events			X		X	X	X	X	X	X
8	Regional field trips to best practice RHC systems		X	X	X	X	X				
9	Two to three webinars on the usage of the "REPLACE your Heating System Calculator" and the "Online technology briefs with info-graphics"		X		X			X	X	X	
10	Show case - mobile heating containers facilitation	X					X				X
11	Show case - support of installers and/or energy utilities/service companies to become plant (+ energy efficiency) contractors					X	X	X	X		
12	Realisation of a pilot project for replication - innovative collaboration models between installers and plant (+ energy efficiency) contractors		X						X	X	

13	Show-case - realisation of collective actions	X	X	X	X	X	X	X	X	X	X
14	Show/pilot project - implementation of innovative TRL6 multi-functional façade systems										
15	Phase-out oil and gas marketing campaign	X									
16	All-round carefree packages for boiler replacement	X									
17	Exploitation, integration and dissemination of financing and affordability issues	X									
18	Information evenings on municipal level regarding replacing oil and gas boilers by climate-friendly solutions	X			X						
19	Innovative alternative or additional boiler or oven replacement activities		XX	X	X					X	

2.1.1 Reasons for deviations regarding selection of obligatory measures and/or the minimum number of measures 1-9 and 10-14

Almost all REPLACE project partners have elaborated plans, that see no deviations from the original concept of choosing at least eight different measures (activities), respecting the minimum number of measures 1-9 and 10-14.

In the Austria pilot region, contrary to the other pilot regions, six instead of eight replacement campaign activities are planned. The reason is that – given the same resources for implementing replacement campaigns - Austria is the only partner where an all-round carefree package (ArCFP) for a replacement of oil and gas boilers, as well as old all-purpose burners is going to be introduced jointly with installers, heating system industries and heating equipment wholesalers under the lead of Department 4/04 of the Provincial Government of Salzburg, supported by AEA via Replace. ArCFPs' are meant to be one-stop-shops from the end consumers' point of view. Installers will coordinate and contract the 5-8 different kinds of artisans needed for a typical boiler replacement centrally. Industry and wholesalers will support installers at all levels possible, so that the installers are able to focus their replacement activities on the high-qualification tasks needed in the households. That should enable installers to replace more boilers than usual. And consumers should find a more attractive offer than usual with less time and coordination effort. The personnel demand for implementing the ArCFP activity is much higher than for the other standard activities selectable. Furthermore the conceptualization foresees that this activity prolongs beyond project life. Also Activity 1 – the phase-out oil and gas marketing campaign goes beyond what other partners allocate into an activity at the average. That is why AEA implements a total of 6 instead of 8 replacement campaign activities.

In Bosnia-Herzegovina, the initial plan of labelling boilers could finally not be realized. There, now the organization of a one-day training program for intermediaries and cantonal government representatives in order to transfer knowledge and build capacity in the field of energy poverty is

planned. Reason for that is that in Sarajevo Canton and Bosnia and Herzegovina in general, energy poverty is a burning problem. The activity shall thus help to get over the lack of programs to help vulnerable households, the lack of knowledge in the implementation of energy efficiency measures related to sustainable heating systems and the choice of the most efficient option.

In North-West Croatia, two alternative activities were planned, an intermediary campaign to bridge the gap between citizens and available funding possibilities offered by county governments, and information evenings on municipal level.

In Bulgaria and Slovenia, additional activities are planned for REPLACE. Two activities in Bulgaria, a pilot project for residential heating replacement, initiated by a municipality, and the promotion and development of financial instruments. In Slovenia, the additional activity collective action with Eco fund and Borzen is planned as a joint undertaking in order to raise awareness about importance and benefits of boiler replacement through a holistic education process of each households that aim to replace their old, inefficient heating system.

2.1.2 Alignment of replacement policy programs/measures/instruments in LWGs

Existing policy programmes or measures will be adapted to the requirements of the target regions to improve the quality and efficiency of the RHC and DH systems that should be supported to be implemented and to minimize any negative impacts of operation of those systems on people, animals and the environment and to facilitate the planned boiler and oven replacement campaigns.

In each target region 3–5 (R)HC policy programme development workshops or (R)HC policy measures development workshops will be organised, e.g. jointly with Local Working Group meetings. In the workshops, that can coincide with other parallel workshops, the planned campaigns are presented, existing barriers and the possible improvement of regulatory, legal and fiscal framework conditions that would facilitate the implementation of the replacement campaigns will be discussed and solution to overcome obstacles will be elaborated.

Policy options like improvement of contractual conditions for market actors, banishing “all-purpose burners”, i.e. inefficient stand-by secondary boiler systems that could frequently be used for (illegal) household waste incineration, as well as pushing back the rapid diffusion of mobile mono-block air conditioners with exhaust hose(s) and for enforcing standards towards more efficient devices than the “usual standard” split air conditioners, can be discussion points.

Major policy discussion topics regarding replacement campaigns could also be:

- All-around-carefree packages; facilitating cooperation between replacement actors, i.e. intermediaries; support of establishment of one-stop-shops (with minimum standards) run by installers, boiler/oven manufacturers or a group of intermediaries required for a boiler replacement
- Avoidance of like-for-like replacements in case of sudden break downs by supporting mobile heat containers/devices (i.e. tackling lock-in effects – see below)
- Financing and affordability;
    - e.g. stretching of bank loan terms so that annual loan instalments do not surpass the height of monetarized energy savings;
    - more ambitious: supporting the introduction of liability funds (see Austrian case)
- Energy poverty and gender issues, see below

2.1.3 Tackling potential rebound-, lock-in effects, gender aspects and energy poverty issues when designing programmes and measures

Rebound Effects

Policymakers have often expressed concern that energy efficiency policies sometimes do not achieve the intended impact due to the rebound effect. Energy efficiency-related "rebound effects" refer to the tendency of consumers to increase their use of energy services in response to the EE measures that had initially reduced their energy costs[4]. Rebound effects can be sub-divided into two main categories:

- Direct rebound effects: the increase in consumption of the targeted energy service due to lower cost (e.g. heating more floor space or setting the thermostat at a higher temperature), and
- Indirect rebound effects: increased consumption of non-targeted energy services due to a rise in disposable income (e.g. using the saved money to buy more appliances or engaging in other CO_2-emission inducing activities, like traveling).

Despite this consumer tendency, energy efficiency policies can, however, be designed to counter high rebound effects be designing targeted policy measures and packages. There have been many studies conducted to identify the main drivers behind this phenomenon of rebound effect and the type of policies needed to mitigate the effects. Some researchers have shown that the installation of heat pumps as an energy-saving measure in households does not always lead to the predicted savings, because customers tend to turn up the thermostat to make their homes warmer or they tend to use their heating systems for a longer duration in the winter season. Energy savings can also be limited, since heat pumps are often installed in the process of a larger home renovation that also increases the floor space of the home[5]. Heating systems are linked directly to the comfort level of houses and apartments: the warmer the temperature, the increased perception of the “cosiness” and liveability of the space. As a result, homeowners, who end up installing renewable energy systems as a replacement for fossil-fuel based systems for convenience, costs and comfort reasons, may end up having higher heating bills due to increased room temperatures. Some individuals might also refrain from turning off their renewable energy heating system during the night or when they are away; this can be called the comfort-related rebound effect. Heat pumps or pellets-based heating systems, in particular, can result in additional energy costs over the course of the year, since some consumers use the heat pumps to cool floor space in warmer summer months. As opposed to traditional ovens or boilers, new heating systems require very little effort: you do not need to go out into the cold to harvest wood or manually refuel the oven. Modern renewable energy systems provide central heating units that can easily heat the entire floor space. Due to this convenience, individuals tend to heat throughout the heating season, thereby increasing the heating costs, so that they do not have to wait for their houses to reach a comfortable temperature after not being home

[4] de la Rue du Can, S., McNeil, M. & Leventis, G., 2015. *Rebound Effects in the Context of Developing Country Efficiency Programs. Final Report.,* s.l.: Lawrence Berkeley National Laboratory.

[5] Winther and Wilhite, 2014. An analysis of the household energy rebound effectfrom a practice perspective: spatial and temporal dimensions. Available: https://core.ac.uk/download/pdf/81884316.pdf .

for a while. Previously, individuals would only heat one central room or the bedrooms to reduce the burden of refilling the fuel.

From the stakeholder interviews conducted within WP3, one can see that some technologies, which were not suitable for the living space, were installed, resulting in higher than normal energy costs. Policymakers should keep in mind that an intended reduction in energy consumption might still lead to an increase in costs due to the tendency of consumers to increase their comfort level. Policies should be designed to counteract or mitigate the rebound effect by encouraging consumers to shift to overall greener consumption patterns and to reduce their overall consumption. The rebound effect can also vary quite strongly from household to household and among income groups: low-income households, which tend to reside in poorly-insulated homes, tend to more cost sensitive (i.e. have higher price elasticity) [6].

In the last years, energy smart meters and sensors are being installed in many EU homes to obtain data from the energy consumption and the humidity and temperature conditions. Simple information provided frequently has demonstrated to help consumers to better understand their consumption pattern and change their behaviour, mitigating rebound effects. Having energy metering systems before and after renovation would support understanding the real impact of the more efficient system improvement. Cost signals, as the calculation in economic terms of the savings, is a simple way to inform consumers on the economic benefits reached. Also, CO_2 impact and other information can be provided to increase awareness towards national and EU targets.

Lock-In Effects

The term „lock-in“ is used to describe an unwanted situation in which consumers are unwillingly bound to a specific product or service. In the heating sector, this phenomenon can be seen where customers are bound to a heating system type and fuel until the end of its long lifespan. In many cases it can be observed that customers stock up on fuel, when the price is low, and are thus unwilling to switch to another heating system before it breaks. In some other cases, the incorrect technology choice for the type of building can also result in a lock-in situation: a heat pump, for example, should only be installed in buildings that have a thermally-insulated building shell and a proper thermal output system, otherwise the heating costs can sky rocket. Another lock-in effect installers in some EU regions is the tradition for installers to install systems based on a specific fuel, as fuel oil or natural gas, making them reluctant to change to different ones (as biomass or other renewables) with better economic figures in the long term for both user and installer-maintainer as well as for the local economy. The REPLACE project targets this aspect by helping and allowing consumers to take an informed and planned decision avoiding emergency lock-in replacements. One solution to avoid lock-in effects is to use a mobile heating container, which is explained in more detail below.

A mobile heating and hot water supply system can easily take over the supply without interruption in case of a planned replacement, renewal or maintenance of the heat supply system in a residential building, no matter whether it is a single family house or a large complex, or a floor space extension. Other application areas are the extension of an existing district heating system or the installation of

[6] Aydin, Kok and Brounen, 2017. Energy efficiency and household behavior:the rebound effect in the residential sector. Available: https://sustainable-finance.nl/upload/researches/Aydin-et-al_Energy-Efficiency-and-Household-Behavior.pdf .

new boilers or equipment in it leading to a shutdown of the original supply systems. Mobile devices also have another important function. For many years now, the decision for oil boiler replacements have often been taken spontaneously or unplanned as a result of an unsolvable problem, i.e. a boiler break-down. If this happens in the heating season, boiler replacement decisions are uninformed. The quickest solution is then a 1:1 renewal of the existing heat supplier with the same energy source (energy source lock-in). Mobile devices can help ensure that no emergency replacements happen, but that instead unforeseen heating problems are temporarily bridged. End customers gain the time they need to obtain independent and product-neutral advice and are thus able to make more sustainable decisions. This can happen also during heating season without any loss of comfort for end consumers.

In a planned fuel-switch situation, the boiler can be replaced without any problems during the heating season in winter, even without the application of mobile heating systems. The heating and hot water preparation are only interrupted for a few hours. The temperature in smaller buildings does not drastically drop down in just a few hours and hot water demand can be planned accordingly. In case a mobile heating device is needed, the rental price to bridge, e.g. the hot water supply is of little consequence in view of the often more favourable conditions for installers in winter. Such mobile devices can usually be offered by installers, especially for smaller properties, and can be rented directly from professional providers for larger objects. Depending on the system capacity, mobile devices are operated with electricity, pellets, gas or oil. Mobile devices are delivered on site on the agreed date, connected to the house installation via flexible and pressure-stable cables and put into operation. Depending on customer requirements, on-site support including tank management can also be carried out.

A targeted use of mobile heating and hot water systems can also mitigate the problem of the skilled workers' shortage that exists in many regions, because it makes it possible to replace boilers in the last part of the heating season (Jan-May), when installers normally have less to do. As a result, skilled workers can be better utilized seasonally (by-pass operation with bridging system in the heating season; flatten the curve). Such a solution would be of particular interest in larger buildings, where comprehensive thermal renovations tend to pay off. The insulation work would have to be performed before the old boiler is changed by a heating system supplying much less heat load.

Gender and Energy Poverty

As could be seen in the WP3 stakeholder interviews conducted in the various target regions, a number of households, which demonstrated unwillingness to switch their heating systems, shared several commonalities, including limited financial resources, lack of access to information (and to the internet) and increased age group. Senior citizens are most affected by improper or outdated heating systems, because they not only have restrictions on their ability to get financial loans, but also do not want to have to go through the additional trouble. Since women tend to have a longer life expectancy than men, women are also disproportionately more affected by these issues.

Energy poverty can be understood as the inability of a household to experience essential energy services as a result of overall social disadvantages, below-average household income, high energy costs and inefficient buildings[7]. Energy poor households can be those households who are either

[7] EU Energy Poverty Observatory, 2020. What is energy poverty? Available: https://www.energypoverty.eu/about/what-energy-poverty .

unable to adequately heat their homes or those that suffer from above-average energy costs and the related financial burden[8]. Studies have shown that vulnerable consumers, who are affected by energy poverty, tend to be older, suffer from disability or illness, work part-time jobs, live alone and only have access to a single income (e.g. single parents)[9]. Due to existing societal gender inequalities, women tend to earn less over their lifetime than their male counterparts and thus have less money to fall back on during their retirement years. As a result, more women tend to be susceptible to energy or fuel poverty, since investing in energy-efficient measures can quickly become a financial burden. Women are also more likely to live alone in their retirement ages, which can exacerbate this problem even further. Women play a critical role in the energy management of households, not only because they have specific responsibilities associated with gender roles prescribed by society (e.g. household tasks, childcare, cooking), but because they tend to be more environmentally-aware.

All campaigns targeting the heating sector should thus make sure that gender and energy poverty aspects are duly considered when designing specific measures. Providing investment assistance, independent energy advice services, and guidance and information can greatly reduce the burden on energy poor households.

For energy poor households behavioral changes that impact energy consumption are the low hanging fruit to be exploited first. That means that the LWG might consider option to increase awareness on such measures by appropriate means. Here is listed (by WIP from D4.2) what can be done.

Energy savings do not always require significant investments of capital. Sometimes, it is enough to follow some simple tips and to adopt environmentally friendly habits to save up to 20 % on your energy consumption for home heating.

Few examples from our list of recommendations include the following[10]:

- Adjust the room temperature: it is enough to lower the temperature of just one degree in the room in order to achieve 6 % energy savings.
- Get the right humidity level in the room: at equal temperature levels, dry air is perceived as colder than moist air. The optimal level of humidity in the room should be between 30 % and 55 %.
- Close the doors to not disperse the heat into colder rooms and close shutters, which are an additional heat protection, especially in buildings with bad windows.
- Lower the temperature at night, especially if your home gets warm again quickly in the morning.
- Do not heat cellars and garage: they are usually poorly insulated and that is why the energy consumption in there is usually three to four times that of a living room. If the rooms are not used, you should avoid heating them.

[8] Berger and Matzinger, 2020. Energiearmut – Frauen sind besonders betroffen, aber unsichtbar. Available: https://www.gender-blog.de/beitrag/energie-armut-frauen .

[9] Robinson and Caitlin, 2019. Energy Poverty and Gender in England. A Spatial Perspective. Geoforum 104 (2019) 222-233. https://doi.org/10.1016/j.geoforum.2019.05.001 .

[10] Energie Tirol, 2016. 20 % Heikosten sparen. Available: https://www.energie-tirol.at/uploads/tx_bh/energie_tirol_handbuch_heizkosten_sparen.pdf .

- Ventilate the room by opening the windows, during the right time. Rooms minimum 10 minutes, preferably in the warmer hours in Winter and colder in Summer, or after waking up. When more people are at home, longer times are suggested. This allows fresh air to enter the room and avoid cooling: in the heating season, the colder the outside temperature, the shorter the ventilation time.
- Install seals or replace the old ones: old windows and doors can be the cause of drafts and heat losses. Installing gaskets saves energy costs and increases comfort.
- When and where possible, install thermostats and control systems, like valves on the radiators to set the desired temperature, radiator thermostats which quickly react to temperature changes in the room, radiator thermostats with time programming functions and/or individual to each room.
- Remove objects which might cover the radiators (i.e. curtains on a wall radiator, carpets on the floor heating) and regularly clean the radiators from dust.
- If you hear a gurgling in the pipes or radiators, the heating should be vented. You may be able to do this yourself with a ventilation key or, if in doubt, have the installer do it for you. Venting can also be carried out on underfloor heating manifolds.
- You should also consider whether it does not get warm enough in individual rooms when the radiators are fully turned on. This can be an indication of a lack of hydraulic balancing of the heating system, which can be carried out by an installer and which alone can save a good 15 percent or more of energy costs.
- Can the valves no longer be opened and closed? Then the installer should definitely do it!

Carry out a professional inspection of your heater once per year to ensure good maintenance and prevent undesired failures.

Simple, isn't it?

2.1.4 Adjusting and implementing promising collective (and partly demand response) actions in the target regions

Initiatives on energy topics tend, more often than not, to take a top-down approach rather than a bottom-up one, because policymakers often believe that consumers will be unable to understand the complex interlinkages related to energy use. However, many projects and studies have shown that in order to create long-last changing, a bottom-up initiative, together with collaborations with local networks, is critical. In the following, experiences of Austria are described.

Austria is lucky enough to have a number of established channels that can help implement such a bottom-up initiative, including the climate und energy model regions (KEM), as well as the network of municipalities within the e5 program and Climate Alliance Austria. These networks can help communicate the benefits of energy saving measures, while also offering support and guidance in the implementation stage or sharing success stories.

Other common success factors for initiatives include:

- Gaining the support of local individuals, who are already trusted in the community
- Testing out the idea on a pilot project in a smaller community or municipality
- Involving a broad range of stakeholders

- Concentrating on simpler, cost-effective measures with the greatest impact (i.e. low-hanging fruits)
- Reducing the complexity by offering a dedicated contact point, creating a one-stop-shop or offering an all-round carefree package
- Providing comprehensive financial packages to cover the investment needs for cost-intensive measures
- Coupling new initiatives on already existing financial schemes, while also offering other ones targeting low-income households or persons in need
- Bundling a number of energy efficiency measures together to achieve higher overall energy and cost savings
- Including energy consultants or advisors who give unbiased advice and visit the site directly
- Ensuring that the initiative implementation plan is aligned with the regional and local interests
- Focusing on the added value and the benefits for the individual, community and region
- Providing standardized service packages by local companies with a price cap for a defined package (to which local companies commit themselves to)

The Austrian project team recommends to establish collective actions that are “bottom-linked”, meaning that initiative does not come from the residents but from authorities or established communities or associations. Ideally an institutionalised care taker (which is financed properly) would take over the process of establishing a collective action (CA) and of managing and steering its implementation. A bottom-linked approach enables replication in other regions and a higher impact, as normal residents, which can take over such a role and can spend sufficient time free of charge for their neighbours and beyond, are rather limited.

To address low income households with inefficient heating systems and to better consider a segmentation of the target group based on e.g. gender, age, revenue, etc., campaigns taking place at the later stage of the REPLAC project are geared towards low hanging fruits which may have a quicker, more realistic and higher impact than solely targeting complete boiler replacements. These low hanging fruits are collective actions focused on the thermal insulation of the uppermost ceiling of single family houses and/or classical boiler room check measures.

With both measures, or each respectively, about 10-15 % of total heat demand can be reduced, adding up to 20-30 % of energy savings, even before a boiler is replaced, making the new heating system significantly cheaper in terms of investment in addition.

- Regarding the thermal insulation of the uppermost ceiling it is recommended to collectively organize the material demand survey and to buy the (in best case renewable based) insulation materials. Implementation, due to liabilities and different preferences of end consumers should be organized by the end consumers themselves, e.g. via engagement of professionals or (a joint) organization of self-assembly groups. At mid European conditions, such an insulation should not cost more than 2-3 kEUR and normally pays off even in less than ten years.
- The boiler room check measures should be organized together with installers or energy advisers, or both respectively. Here all heat distribution pipes in the cellar shall be insulated properly. The (integration of the) domestic hot water supply system should be checked an optimized. Old hot water circulation pumps should be renewed by energy efficient, variable-speed ones, ideally being able to support hydraulic balancing of the whole heat in-house distribution system (costing about 250-300 Euro), which includes the implementation of intelligent temperature controllers (thermostatic valves) on the radiators (price about 50 Euro per item). Hydraulic balancing can take several hours, depending on the number of rooms and radiators installed up to a day. Additionally it is required that an installer or a service technician ensures that the operating behaviour of the existing heating system and the newly purchased variable speed circulating pump has been adjusted to each other in such a way that, on the basis of the heating curve (the

ratio of required flow and outside temperature), the most efficient operation is ensured in the long term and the customer receives appropriate training in the operation of the system. Here again the investment would pay off within a couple of years, depending on height of fuel prices.

This is, in both cases, a pay-off value that even under best conditions is hardly achievable by a full boiler replacement, where (in mid-Europe, even with subsidies currently) we speak about payback times of 12-20 years. A further advantage of that scenario – that especially addresses social and gender aspects too – is that in case a new heating system is needed after the REPLACE action, the systems' nominal capacity can be 20-30 % less than it would have been without insulating the uppermost ceiling and the described boiler room check measures. The new heating system therefore becomes much more less expensive in terms of investment than without those low hanging fruit measures. The new heating system itself is of course more energy energy efficient and its investment therefore also saves fuel costs by.

2.2 Local media cooperation strategy

In all target regions, the actions will be accompanied by a tailor made local media cooperation strategy. This strategy had to be planned before the actions were implemented. The following aspects needed to be considered:

1. What do we want to achieve for whom, by when and to what extent?

2. PR analysis (open-ended collection, not yet planned):

- Target groups and points of view
- Possible partners and critics
- Topics
- Own strengths and weaknesses
- External opportunities and risks

3. Strategic orientation

- Pilot-region wide, local communication strategy/means by project and/or LWG/implementing partners
- Analysis results: Environment and potential target groups
- Select the most important target groups
- Develop creative ideas for actions
- Set up information distributors
- Recognizing conflict potential
- Initiate new strategic cooperations
- Most important benefits of the campaigns for individual target groups (short and factual, for internal use) (EWO can provide ideas for partners)
- Simple core messages (EWO can provide ideas for partners)
- Topics/Stories: What topics are we working on? Which stories do we tell? Which solitary occasions for news do we see? & what news do we get from it?

4. Selection of activities and instruments

5. Time planning

3 | REPLACE action plans in the target regions

The described local action plans were adapted individually in the REPLACE target regions. Following, the action plans and the accompanying media cooperation strategy are described in detail. For Bosnia-Herzegovina and North Macedonia, more insights in the media cooperation strategy is provided than initially planned. It will be nevertheless shown as replicable examples that might help and inspire others in their plannings.

3.1 Austria

As part of the REPLACE action, six comprehensive oil and natural gas based space-heating systems replacement campaign activities will be realized in the Austrian Province Salzburg.

The strategic orientation of the Replace boiler replacement campaign was based on a survey on the prioritisation of 15 proposed campaign activities among the Local Working group members (16 of 23 members gave their prioritisation) and was finally defined in an online meeting of the Department 4/04 of the Office of the Salzburg Provincial Government and AEA.

Department 4/04 asked for a more effective strategic orientation of the REPLACE replacement campaign in order to better fit the phase-out of fossil based fuels targets and to avoid hardship cases related to a pending Building Technology Ordinance amendment. Salzburg plans a prohibition of like-for-like changes, if an old fuel oil boiler breaks down in a house, via a Building Technology Ordinance amendment taking effect early 2021. The two fields of activities, all-round carefree replacement packages and financing and affordability issues discussed at the LWG kick-off, on the 6th of July 2020 are also pillars of this strategic orientation.

Table 2 provides an overview of the selected activities, the preliminary time-frame for implementation and (the main) stakeholders in charge of realisation. It is expected that some of the activities will be effective beyond project life. They will be established to be offered permanently (as long as all stakeholders benefit from their offer). For some other activities the starting and end time are not yet fixed, as discussions and alignment with (co-financing or decision-making, respectively) partner institutions are ongoing.

Table 2: Overview of the implementation of the chosen activities

No.	Activity	Timeframe	Stakeholders
1.	Phase-out fossil fuels marketing campaign	June 2021 – t.b.d.	• Dept. 4/04, AEA • Marketing agencies • Provincial Media Centre • Local media • Municipalities • LWG members • End consumers
2.	All-round carefree replacements packages (ARCP)	May/June 2021 – beyond project life	• Dept. 4/04, AEA • Potential ARCP suppliers • Banks • Public energy advisers • End-user interest org. • End consumers

3.	Jointly organized boiler room check measures	March 2021 – t.b.d.	• Dept. 4/04, AEA • Installers • Public energy advisers • Municipalities • End consumers
4.	Promotion of mobile heat devices	May 2021 – t.b.d.	• Dept. 4/04, AEA • Installers • Marketing campaign • End consumers
5.	On-site information events for end consumers	September 2021 – beyond project life	• Municipalities • e5 Salzburg • KEM Regions Salzburg • Public energy advisers • Banks • End consumers
6.	Tackling financing and affordability issues	April 2021 – September 2022	• Dept. 4/04, AEA • Ministry in charge • Banks • Contractors • LWG members • End consumers

The realisation of the actions will require continuous cooperation between local authorities, intermediaries and end-users, which will be assisted by the Department 4/04 of the the office of the Salzburg Provincial Government.

Current market framework conditions

The market environment on the housing renovation market (including boiler replacements) is despite of the pandemic situation good. Many people, because of the many lock-down situation(s) saved money otherwise consumed for articles or holidays and invest part of it for improving their homes, where they are forced to stay most time now. In addition, the Federal Government decided to poor money in areas of green business to tackle both, climate change and unemployment. This lead to increased federal funds dedicated for financial support for climate change mitigation measures in the building sector. The situation should even improve, as new funds (maybe in the 2nd quarter of 2021) will be available for the first time to end consumers that undergo energy poverty. People eligible shall receive subsidies on top to that available to all. In parallel a federal liability fund is created that ensures financial security to contractors that implement measures at buildings that host people affected by energy poverty or is applicable for elderly people that (due to various reasons) are not able to take a loan from a bank.

3.1.1 Activity 1 – Phase-out fossil fuels marketing campaign

Figure 1: Examples of solutions facilitating the phase out of fossil fuels, sustainability is the ultimate objective [11]

Salzburg Province offers, even when compared to other Austrian provinces, attractive services and – on to federal subsidies – financial support to end consumers related to space and domestic hot water heat demand regarding deep housing renovation (up to 60% investment subsidy) and fuel switch measures (up to 30% investment subsidy). A further example is the free of charge public energy advice for end consumers. Often end consumers are not aware about those offers, as heating and its equipment is not something people normally think about, as long as there is no malfunctions that lets them think about it. The marketing campaign is for getting access to end consumers, especially those who run old oil or natural gas boilers and consume much more energy than necessary.

The Phase-out oil and gas marketing campaign will support the implementation of all Replace campaign activities. This marketing campaign will include a comprehensive local media campaign, steered by Dept. 4/04, AEA and supported by the Media Centre of the Salzburg Provincial Government. The campaign might include news about the Project, the results of actions, but also examples of good practice, successful implementation and experience of users from Salzburg. Details will be elaborated by professional assistance from two involved marketing agencies (one of them as Replace sub-contractor of AEA; the other contracted by Dept. 4/04 supported by a small co-financing contribution from AEAs' Replace budget).

A fixed overview of the planned actions for implementing the activity, the time-frame and stakeholders involved cannot yet given as it is in a pre-planning stage.

[11] @BMLRT/Alexander Haiden

Table 3: Overview of the Activity 1 implementation plan (status Feb 2021)

No.	Action	Timeframe	Stakeholders
1.	Sounding out and alignment phase	1st quarter of 2021	• Dept. 4/04, AEA • Office of the competent provincial councillor • Marketing agencies • Provincial Media Centre
2.	Preparation of campaign	2nd quarter & summer 2021	
3.	Implementation of campaign	Autumn 2021	

Implementation barriers:

Currently it is difficult to attract the awareness of people that do not yet think about a refurbishment measure in their house. Quite a few people running old fossil fuel fired boilers are reluctant to do something against climate change. Despite favourable financial support, they rather think the boiler until now worked quite well and will do that for some years to come as well, as long as it can do so with some maintenance. Oil boilers are usually robust, long-lasting devices that can achieve a long service life of over 30 years with the help of minor repairs. As the oil and gas prices are quite low now, they are confident to remain locked-in to fuel oil or natural gas.

3.1.2 Activity 2 – All-round carefree replacements packages

Figure 2: Cooperation is at the heart of all-round carefree replacement packages for the phase out of fossil fuels [12]

A switch of oil or gas fuelled heating system to one based on renewable energy or district heat requires a lot of information, time, coordination and up-front investment (20 to 30 kEUR for a single-family house) and is not a very enjoyable process. In addition, many people shy away from a 5-day construction site. Furthermore, many people do not have the necessary funds, can no longer get a loan, cannot afford an exchange or it no longer makes sense (limited demolition, nursing home) to do so. In general, the boiler often is only replaced when there is no other option or if there is a window of opportunity (building extension, sale of house, generation change). However, there is frequently

[12] @Austrian Energy Agency

no time for making an educated, well-considered decision. Due to the challenges mentioned or because of time constraints, 1:1 replacements are therefore carried out very often, since they are usually the most affordable option in the short term. Such cases can be reduced by utilizing mobile heating devices, which is part of Activity 4, all-round carefree packages and is described below. Politicians are increasingly promoting the exchange to renewables and the related benefits a fuel switch brings along. However, there are a number of bottlenecks that hinder the phase-out of old, oil or gas fuelled boilers. These include the limited availability of skilled workers and installers, as well as complexity of funding schemes.

A solution to those manifold problems might be all-round carefree packages (ArCFP), which should remove essential barriers that households face when switching from oil or gas to renewable energy sources or district heat. These barriers include the need for information on the choice of technology, the funding system and technology related decision-making, the complexity of the implementation, and important issues such as affordability and financing. In principle, the Local Working Group (LWG) and the Dept. 4/04 are interested in defining this approach more concretely and actively supporting such initiatives. Potential providers of all-round carefree packages could be installers, heating system manufacturers, heating equipment wholesalers or cooperating groups of artisans active in that business.

WP3 interviews revealed that a “one-stop-shop” made up by manufacturers might be interesting for end consumers that do not have contacts to local artisans on a “be known to each other” basis, which is often the case in more densely populated areas. Installers are currently well utilised and frequently do not take care of project elements that involve other artisans. However, some consumers definitely trust their known installers more than manufacturers who may be located far away and with whom there is no frequent contact. In this regard, it might be easier to have a central ArCFP contact person who is the local, known installer. This option is especially preferred at rural areas, where people know each other, and long-term stable relations are an important aspect of economic activities. Ideally, everyone involved in such packages (energy advice, plumbers, chimney sweepers and manufacturers, etc.) would develop a common solution for a household in question and speak a common language. Basically the installer in any case will be the contractual partner of the household who wants to make a fuel switch. The manufacturers, wholesalers, etc. are the ones, who can support the installers in implementing the fuel switch at different levels (e.g. planning, funding issues, up to removal and disposal of old and placing of new equipment, without assembling the latter, etc.). That means that the installers need less time for a fuel switch and that boiler switch rates can be improved. Such a package, offered like in a one-stop-shop, is planned to be backed by a free, independent energy advice. The information from the initial on-site and independent energy advice visit will be made available via the end consumers that got the minutes of that energy advice by forwarding it to the package (one-stop-shop) providers that are asked to provide offers for implementation.

The introduction of ArCFP was discussed at the kick-off meeting of the LWG. The aim here is to reduce the existing complexity and obstacles to the replacement of fuel oil boilers, e.g. by establishing cooperation models on the part of professional suppliers in the form of all-inclusive packages. The first milestone on the way to establish ArCFP was to get a commitment that Department 4/04 of the Office of the Salzburg Provincial Government takes care that “qualified offers” are listed on a (state) public website and that their public energy advisers may make aware about that website during end consumer consultancies. Independent energy advisers will be a vital element of ArCFP, as all stakeholders should promote the same solution and “speak the same language” towards end consumers. The next step is to define “qualified offers” together with potential providers of ArCFP (e.g. installers, manufacturers, wholesalers, crafts etc.) on provincial level. For that, about 20 interviews with potential ArCFP providers and of stakeholders of similar offers, already existing on the market and a sub-LWG for the concrete design and implementation of

ArCFP are planned. The basic ArCFP will include energy efficiency measures that lower energy demand by 10-20% independent of replacement technology choice. When Dept. 4/04 finally decides what qualified ArCFP must look like, a roll-out concept is to be implemented. It is planned to program an ArCFP online platform, where listed ArCFP providers can offer their services. In a supplier database it is defined what basic and supplementary services are offered by each supplier[13]. Basic ArCFP services are a minimum list of services that a provider has to offer to qualify to be listed. Supplementary services are going beyond that standard fuel switch set of measures. If an end consumer visits the ArCFP online platform she or he can filter the supplier database to find suppliers that exactly offer what is needed and are located in certain distance to its building. With the suppliers that match the requirements of the household the household can easily make contact with and request offers to compare costs and conditions. Upon initial request, ArCFP suppliers have to call back within 3 days and schedule an installer's on-site visit, who has to make an offer within 2 weeks, if requested. In case a contract is concluded implementation has to take place within 12 weeks. In case a mobile heat device is needed because of a boiler break-down, this has to be implemented within 24 hours after initial contact. When many suppliers offer ArCFP, they potentially can play an important role in boosting replacement of residential heating systems based on fuel oil and natural gas.

A fixed overview of the planned actions for implementing the activity, the time-frame and stakeholders involved cannot yet given, as the activity is in a pre-planning stage.

Table 4: Overview of the Activity 2 implementation plan (status Feb 2021)

No.	Action	Timeframe	Stakeholders
1.	Discussion of ArCFP at the 1st LWG meeting	6. July 2020	• AEA, Dept. 4/04 • LWG members
2.	Development of a draft ArCFP concept	Nov-Dec 2020	• AEA • Dept. 4/04
3.	Interviews with potential ArCFP providers	Jan-March 2021	• AEA
4.	Update of ArCFP concept	March-April 2021	• AEA • Dept. 4/04
5.	Alignment of ArCFP development and implementation concept with potential ArCFP providers in a joint online workshop	April 2021	• AEA, Dept. 4/04 • Potential ArCFP providers • Consumer interest groups

[13] Currently talks are running how the online ArCFP platform can be financed and serviced with an open end. AEA tries to find a solution where the platform is financed by a federal authority. Ideally the online ArCFP platform and ArCFP supplier database should be programmed in a way that it is extendable to all nine Austrian provinces. Replace would enable the platform to be tested in the province of Salzburg before ArCFP suppliers offer their services in other provinces too. The platform ideally would be financed on federal level and the database would be serviced and maintained by the provincial authorities in charge of residential heating system fuel switches.

6.	Programming of the ArCFP online platform and of the database (listing of ArCFP suppliers)	April-Oct 2021	• AEA, Dept. 4/04
7.	Testing of ArCFP concept (list of basic services) by potential providers with real end consumers	June-Oct 2021	• Potential ArCFP providers • Households •
8.	Start of testing the beta version of the online ArCFP platform with real end consumers	Nov 21 – March 22	• Potential ArCFP providers • Households • AEA support
9.	Official launch of the online ArCFP platform, supported by Activity 1	April 22 – beyond project life	• Dept. 4/04, AEA • ArCFP suppliers

Implementation barriers:

Many actors welcome the idea of an all-around carefree package that would be developed together by the public administration in cooperation with relevant artisans and technology providers, since it would lessen the burden for all participating parties. However, some intermediaries express their concern about the viability of such a package solution for all types of technologies, since heat pumps, for example, are already very popular. Convincing them to improve or expand their offer might be challenging. Additionally, there are households that want to get involved by themselves. Other intermediaries mention they already offer a kind of all-round services and that this would already work. Other interviewees doubt, if it would be beneficial to cooperate with other artisans and if cooperation could remain stable in the long term. Such one-stop-shop packages would have to be attractive for the installers and manufacturers (and other stakeholders, e.g. chimney sweepers) alike, otherwise it would be difficult to convince them to participate. More direct and consistent communication is needed in order to reach a broader audience.

3.1.3 Activity 3 – Jointly organized boiler room check measures

Figure 3: Installers performing a boiler check measures and hydraulic balancing equipment installed at a radiator valve [14]

Activity 3 represents a collective action (CA). In every pilot region of REPLACE at least one CA should be implemented. Initiatives on energy topics tend, more often than not, to take a top-down approach rather than a bottom-up one, because policymakers often believe that consumers will be unable to understand the complex interlinkages related to energy use. However, many projects and studies have shown that in order to create long-last changing, a bottom-up initiative, together with collaborations with local networks, is needed.

AEA with Activity 3 tries to establish a collective action (CA) that is "bottom-linked", meaning that the initiative does not come from the residents but from authorities or established communities or associations. Ideally, an institutionalised caretaker (who is financed properly) would take over the process of establishing a CA and of managing and steering its implementation. A bottom-linked approach enables replication in other regions and a higher impact, as normal residents, which can take over such a role and can spend sufficient time free-of-charge for her/his neighbours and beyond, are rather limited.

Activity 3 also addresses low-income households with inefficient heating systems and allows better addressing a segmentation of the target group regarding gender, age, revenue, aspects that often interrelate. Activity 3 within REPLACE also helps that actions are oriented towards low hanging fruits, which may have a quicker, more realistic and relevant impact than solely targeting complete boiler replacements. An example for such a low hanging fruit is a collective action focused on classical boiler room check measures. Boiler check measures would comprise the check of insulation of pipes, tap water system and valves, the quality of heating water and of the water amount in the expansion vessel, the steering and control of the operation of the boiler and the circulation pump according to the heat curve (i.e. the relation of flow temperature according to the outside air temperature), the check of thermostats and hydraulic balancing. Hydraulic balancing is necessary to achieve that certain volume flows are set in a branched hydraulic system. This is to ensure that all heated rooms

[14] @Energie Institut Vorarlberg

become sufficiently warm at the same time. This measure would also include a training of the end consumer on the proper operation of the heating and tap water preparation system. The thermal insulation of the uppermost ceiling of single-family houses is another example of a measure that pays off quickly and is rather easy to implement.

However, with both measures, or each respectively, about 10-15% of total heat demand can be reduced, adding up to 20-30% of energy savings, even before a boiler is replaced, making the new heating system (independently from technology) significantly cheaper in terms of investment in addition.

- Regarding the thermal insulation of the uppermost ceiling it would be possible to collectively organize a material demand survey and to buy the (in best case renewable based) insulation materials. Implementation, due to liabilities and different preferences of end consumers should be organized by the end consumers themselves, e.g. via engagement of professionals or (a joint) organization of self-assembly groups. At mid European conditions, such an insulation should not cost more than 2-3 kEUR and normally pays off even in less than ten years.

- What is actually planned for Salzburg within REPLACE is to organise the boiler room check measures together with installers or energy advisers, or both respectively. Here all heat distribution pipes in the cellar shall be insulated properly. The (integration of the) domestic hot water supply system should be checked an optimized. Old hot water circulation pumps should be renewed by energy efficient, variable-speed ones, ideally being able to support hydraulic balancing of the whole heat in-house distribution system (costing about 250-300 Euro), which includes the implementation of intelligent temperature controllers (thermostatic valves) on the radiators (price about 50 Euro per item). Hydraulic balancing for two artisans tackling that issue, can take several hours, depending on the number of rooms and radiators installed up to a day (one artisan costs about 65 Euro/h). Additionally, an installer or a service technician ensures that the operating behaviour of the existing heating system and the newly purchased variable speed circulating pump is adjusted to each other in such a way that, on the basis of the heating curve (the ratio of required flow and outside temperature), the most efficient operation is ensured in the long term. When the work finally is commissioned and the acceptance protocol is gone through, the customer receives appropriate training in the operation of the system. Here again the minor investment of about 2-3 kEUR would pay off within a couple of years, depending on the price of the fuel and the fuel amount saved.

A further advantage of an insulation of the uppermost ceiling and/or of boiler room check measure – that addresses social and gender aspects too – is that the new heating systems' nominal capacity can be 20-30% less than it would have been without insulating the uppermost ceiling and the described boiler room check measures. The new heating system therefore has lower up-front investment costs than without those low hanging fruit measures. The new heating system itself is of course more energy efficient and on top of 20-30% less energy demand energy conversion is more efficient and saves energy and money too.

To summarize, activity 3 is planned to comprise an (ev. comprehensive) independent energy advice, some small heating room related insulation and equipment renewal measures as well as hydraulic balancing of the whole in-house heat delivery system. So, by simple low-cost measures 10-20% of energy demand can be reduced without a negative effect on any future boiler replacement or refurbishment measure. It is planned to cooperate with the provincial (guild of) installers (see meeting below) and Salzburgs' public energy advisers. By this measure end consumers also get informed about opportunities of a boiler change or any thermal building shell insulation measures. In

parallel municipalities would get assistance to inform on such offers via community newsletters & local news.

The latest plan is that both measures become part of the (obligatory) basic package of all-round carefree packages for boiler replacements. It looks like the thermal insulation of the uppermost ceiling is more likely to become part of "supplementary solutions" that ArCFP providers may offer frequently, if households want/can do so, however. The reason is that the insulation and dry construction artisans usually are not part of an installers' boiler replacement team.

A fixed overview of the planned actions for implementing the activity, the time-frame and stakeholders involved cannot yet given as the activity is in a pre-planning stage.

Table 5: Overview of the Activity 3 implementation plan (status Feb 2021)

No.	Action	Timeframe	Stakeholders
1.	Interview with the head of the provincial guild of installers (details see below)	30.11.2020	• AEA • Dept. 4/04 • Mr. Rotter
2.	Development of an implementation concept via an integration in ArCFP	Feb-March 2021	• AEA, Dept. 4/04
3.	Alignment of ArCFP development and implementation concept with potential providers in a joint online workshop	April 2021	• AEA, Dept. 4/04 • Potential ArCFP providers • Consumer interest groups
5.	Roll-out of activity 3, integrated in activity 2, supported by Activity 1	June 21 -	• ArCFP providers • End consumers • Dept. 4/04, AEA

On 30th of November 2020 a first one hour meeting regarding the replacement campaign activity, boiler check (winterfit) measure took place. Four people attended the meeting. The aim was to sound out whether the provincial guild of installers would support a relaunch of the winterfit action, which the province had launched in 2016/2017.

1	HERBERT	TRETTER	AEA
2	KARINA	KNAUS	AEA
3	STEFAN	ZENZ	PROVINCIAL GOVERNMENT OF SALZBURG
4	ANDREAS	ROTTER	HEAD OF THE PROVINCIAL GUILD OF INSTALLERS

Mr. Rotter, the head of the Salzburgs' guild of installers, said that he and his members welcome a relaunch of the winterfit action. Mr. Zenz said that a new edition might be implemented in spring 2021. This would also include financial support for end consumers that apply for the winterfit offer.

The following screenshot shows the information folder of the 2016/2017 winterfit action.

Ist Ihre Heizung fit genug für den Winter?

Machen Sie den Check! Es lohnt sich.

Die Tage werden kürzer und die Temperaturen gehen merklich zurück. Jetzt braucht es eine Heizung, die fit genug ist für den Winter – dann steht einem gemütlichen und behaglichen Wohnen nichts im Wege. Das Land Salzburg unterstützt Ihren Heizungscheck jetzt mit einer neuen und attraktiven Förderung.

Wer kann um eine Förderung ansuchen?

Eigentümer oder Mieter von Bauten im Bundesland Salzburg.
Der Mieter muss die Zustimmung des Eigentümers nachweisen.

So profitieren Sie von der Förderaktion „Winterfit"

Ihre Heizungsanlage wird von einem Installateur auf mögliche Verbesserungen geprüft. Der Selbstbehalt für diesen Heizungscheck beträgt nur € 25,—. Das Energieressort des Landes unterstützt sowohl die Überprüfung Ihrer Heizungsanlage, als auch die Umsetzung energiesparender Maßnahmen. Auf diese Weise können Sie Ihren Energieverbrauch senken, bis zu € 400,— jährlich an Heizkosten sparen und steigenden Komfort genießen.

Art und Höhe der Förderung

Die Förderung besteht in Form eines nicht rückzahlbaren Direktzuschusses. Die Höhe ist abhängig von den Verbesserungsmaßnahmen, die an der Heizung durchgeführt werden.

Zum Beispiel:

Maßnahme	Förderung
Energieberatung	€ 100,–
Anlagenerhebung	€ 175,–
Tausch einer Umwälzpumpe	€ 100,–
Sockelförderung (wenn Austausch des Heizmediums erforderlich)	€ 200,–
Hydraulischer Abgleich der Heizung	€ 200,–
Summe der Förderung	€ 775,–

Die Förderbeträge zu allen einzelnen Verbesserungsmaßnahmen entnehmen Sie bitte den Förderrichtlinien unter folgendem Link:
https://www.energieaktiv.at/information/foerdermoeglichkeiten/

Empfohlene Energieberatung

Eine kostenlose und produktunabhängige Energieberatung trägt wesentlich zur Effizienzsteigerung der Anlage bei. Erfolgt eine Energieberatung durch die Energieberatung Salzburg erhöht sich die Förderung um € 100,—.
Wichtig: Die Beratung darf – gerechnet ab der Antragstellung – nicht älter als ein halbes Jahr sein und muss spätestens vor der Antragstellung erfolgt sein.

Und so geht's

Zuständig für die Bearbeitung der Förderungsansuchen ist das Amt der Salzburger Landesregierung, Abteilung 4, Referat 4/04 Energiewirtschaft und -beratung. Der Förderantrag ist **ausschließlich** elektronisch unter www.energieaktiv.at einzureichen.

- Antrag stellen auf www.energieaktiv.at oder damit einfach Installateur beauftragen
- Förderzusage abwarten
- Heizung vom Installateur winterfit machen lassen
- Landesförderung erhalten

Die verbindlichen Förderrichtlinien sind unter www.energieaktiv.at abrufbar.

Figure 4: Winterfit action of Salzburg Province

Implementation barriers:

End consumers do not yet recognize boiler room measures as something they can benefit from. They see that it costs a lot (2-3 kEUR) and that installers would walk through their house. Awareness has to be raised and financial incentives can lower burden and signal that such a measure is classified as something good and worth being subsidiesed.

Installers are reluctant to spend up to a day for work where they cannnot make a turnover beyond only selling staff hours. Some installers find the measures interesting as it would give them the opportunity to get access to potential new clients, where they could make a turnover at a later stage. There is however a risk if his strategy pays of. A financial incentive for installers would help here too.

In Austria we currently see a sellers market. Installers have many requests to replace old boilers. Under such a market conditions the interest of installers in activity 3 can be limited.

3.1.4 Activity 4 – Promotion of mobile heat devices

Figure 5: Examples of mobile heat supply solutions facilitating the phase out of fossil fuels [15]

The REPLACE project targets this aspect by helping and allowing consumers to take an informed and planned decision avoiding emergency lock-in replacements. One solution to avoid lock-in effects is to use a mobile heating device or a container for larger heating systems, which is explained in more detail below.

A mobile heating and hot water supply system can easily take over the supply without interruption in case of a planned replacement, renewal or maintenance of the heat supply system in a residential building, no matter whether it is a single-family house or a large complex, or a floor space extension. Other application areas are the extension of an existing district heating system or the installation of new boilers or equipment in it, leading to a shutdown of the original supply systems.

[15] @energy4rent

Mobile devices also have another important function. For many years now, the decision for oil boiler replacements have often been taken spontaneously or unplanned, as a result of an unsolvable problem, i.e. a boiler break-down. If this happens in the heating season, boiler replacement decisions are uninformed. The quickest solution is then a 1:1 renewal of the existing heat supplier with the same energy source (energy source lock-in). Mobile devices can help ensure that no emergency replacements happen, but that instead unforeseen heating problems are temporarily bridged. End customers gain the time they need to obtain independent and product-neutral advice and are thus able to make more sustainable decisions. This can happen also during heating season without any loss of comfort for end consumers.

Depending on the system capacity, mobile devices are operated with electricity, pellets, gas or oil. Mobile devices are delivered on site on the agreed date, connected to the house installation via flexible and pressure-stable cables and put into operation. Depending on customer requirements, on-site support including tank management is also carried out.

Activity 4 shall support the awareness, benefits and availability (as well as affordability) of mobile heating systems. It might be possible that end consumers planning to utilize mobile heat devices can apply for financial support. There are however, enough devices enable on the market, even if not every installer has its own devices, as there are supplies of mobile heat devices and containers, as shown in the pictures above.

A fixed overview of the planned actions for implementing the activity, the time-frame and stakeholders involved cannot yet given as it is in a pre-planning stage.

Table 6: Overview of the Activity 4 implementation plan (status Feb 2021)

No.	Action	Timeframe	Stakeholders
1.	Discussions about activity 4	Dec 2020 – Jan 2021	• AEA • Dept. 4/04
2.	Development of an implementation concept via an integration in ArCFP	Feb-March 2021	• AEA, Dept. 4/04
3.	Alignment of ArCFP development and implementation concept with potential providers in a joint online workshop	April 2021	• AEA, Dept. 4/04 • Potential ArCFP providers • Consumer interest groups
4.	Roll-out of activity 4, integrated in activity 2, supported by Activity 1	June 21 -	• ArCFP providers • End consumers • Dept. 4/04, AEA

Implementation barriers:

Mobile heat devices can help to enable end consumers to bridge a break down of an old boiler, allowing them to take informed decisions on a new, climate friendly heating system. Those systems would take over for several days or even weeks and could run on the existing fuel, if still available. The rent of such systems might be substantial for some end consumers, however. Therefore a financial incentive would help to better establish such bridge-over solutions on the heat market. End consumers and the environment would benefit from that.

3.1.5 Activity 5 – On-site information events for end consumers

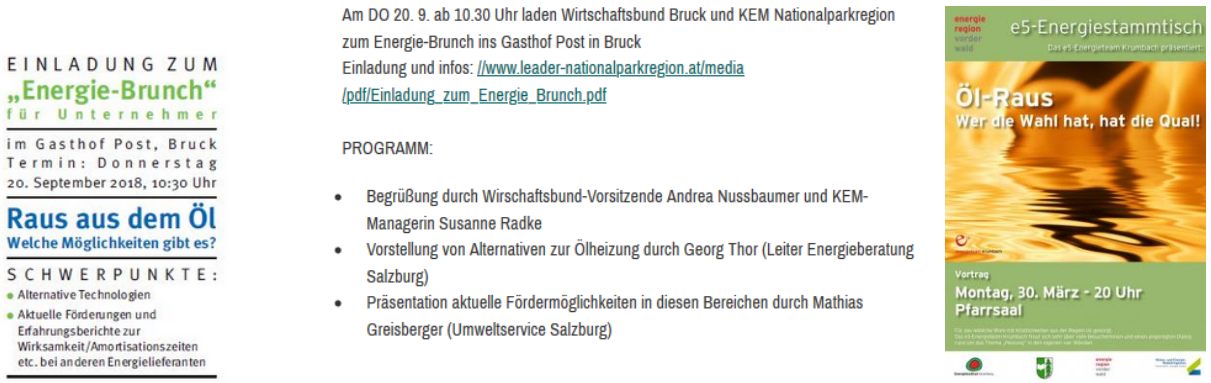


Figure 6: Two invitations to on-site Energy Events with the topic Out of Oil [16]

The Local Working Group explained that on-site energy events proofed to be successful for years in Salzburg. It is planned to organize such (mostly, regionally annual) events jointly with the Managers of the currently two (in future possibly again four) Climate and Energy Model Regions[17] in Salzburg (funded by the Federal Climate and Energy Fund), Salzburg's public energy advisers being active in the respective region and Salzburg's e5 program[18] managers, currently being active in 33 municipalities.

Implementation Plan	**Climate & Energy Fund Region (KEM)**	**e5 Salzburg**	**Energy Advisers Salzburg**	**State Office, Dept. 4/04**	**AEA**
On-site **information evenings**	Promotion and the organisation on site Seenland: Hopefully, from autumn 2021 onwards, regular meetings will be held again, if necessary in each municipality.	Oil Boiler Off Info Evenings in e5 municipalities	Offers can be trained at the advisers' meetings		Info about REPLACE offers

A fixed overview of the planned actions for implementing the activity, the time-frame and stakeholders involved cannot yet given as it is in a pre-planning stage.

[16] @ Klima und Energiemodellregion Oberpinzgau; @e5 Team Krumbach
[17] klimaundenergiemodellregionen.at/
[18] e5-gemeinden.at/englisches-menue/en/e5-programme

Table 7: Overview of the Activity 5 implementation plan (status Feb 2021)

No.	Action	Timeframe	Stakeholders
1.	Sub-LWG "local implementers" 1st online meeting (details see T5.1 report)	28. Nov 2020	• AEA • Dept. 4/04 • Head of Salzburg energy advisers • 3 KEM regions • e5 Salzburg repr.
2.	Joint organisation of information evenings in alignment with Salzburgs' Climate & Energy Fund Regions (KEM) and e5 Salzburg municipalities	Sept 21 – (due to current pandemic situation)	See above, incl. • Municipalities • Banks
3.	Roll-out of activity 5, supported by Activity 1	Sept 21 -	See above

Implementation barriers:

The prolonging pandemic situation hinders the organisation of physical on-site, muinicipal events. Therefore we currently (Jan 21) do not expect physical events before autumn 2021.

As for the availability of end consmumers, (cross-)municipal, on-site evening events might be reasonable.

3.1.6 Activity 6 – Tackling financing and affordability issues

Figure 7: Tackling financing and affordability issues, facilitating the phase out of fossil fuels [19]

This activity currently is planned to be threefold.

[19] @KEM Seenland; @klimaaktiv

- First, banks shall be asked whether they can make offers that might be helpful for or event integrated in ARCP (see activity 2) or could be of help for end consumers in general. This is done by interviews, probably when more information is gained how ACRP should be defined. If successful, bank representatives may even become members of the sub-LWG on ARCP.
- Secondly, financial framework conditions may offer new opportunities. The federal climate ministry currently is putting together both
    - a fund for the assumption of liability, donated with 50 Mio. Euro (net present value) held by the federal government for contracting projects (probably covering an investment volume of 1 billion Euros)
    - a 100 Mio. Euro fund payable (2021 and 2022) on top of basic funding

  for the purpose of thermal-energy related renovation and for switching to climate-friendly heating systems in buildings where low-income people reside.
    - Contractors and (owners of buildings habiting) low-income residents will benefit from that risk sharing mechanism and or from an increased rate of subsidies, depending on income situation.

  It is planned to disseminate the new offers to target groups on supply and demand side. If liability sharing is offered also to projects that only involve banks, this and the planned contracting approach are sounded, whether such offers can be integrated into ARCP.
- The third tier is to disseminate any offers related to financing and affordability that will exist or developed to target groups via consultations and marketing measures on both, (potential) providers' and end consumers' side.

Implementation Plan	**Climate & Energy Fund Region (KEM)**	**e5 Salzburg**	**Energy Advisers Salzburg**	**State Office, Dept. 4/04**	**AEA**
Financing and affordability issues				Workshop for alignment of concept	Draft concept, interviews, moderation
As soon as concrete offers are aligned / available	Promotion	Promotion	Offers can be trained at the advisers' meetings		

The more concrete the offers are the clearer the can be disseminated and promoted.

A fixed overview of the planned actions for implementing the activity, the time-frame and stakeholders involved cannot yet given as it is in a pre-planning stage.

Table 8: Overview of the Activity 6 implementation plan (status Feb 2021)

No.	Action	Timeframe	Stakeholders
1.	Interviews with banks, if they want to become partners of the ArCFP initiative	March-May 2021	• AEA
2.	Development of a draft concept to exploit/disseminate/integrate new subsidy offers	May-June 21 (depends on progress/status of implementation of new subsidy schemes)	• AEA • Dept. 4/04
3.	Workshop with banks, contractors and end consumer interest groups about new public financing and affordability offers from authorities	3rd quarter 21 (insecurities as mentioned above; and concerning Covid-19 situation)	• AEA, Dept. 4/04 • Ministry in Charge • Banks • Contractors • End consumer interest groups
4.	Update of concept to exploit/disseminate/integrate new subsidy offers	3rd quarter 21	• AEA • Dept. 4/04
5.	Workshop with banks, contractors and end consumer interest groups about new public financing and affordability offers from authorities	4th quarter 21	• AEA • Dept. 4/04
6.	Roll-out of joint activities, supported by Activity 1	4th quarter 21	• Dept. 4/04, AEA • Others

Implementation barriers:

It is not clear yet how the planned subisidies (for low-income households and for contracting in buildings where such people reside) will be shaped and how effective they can be or become, respectively. Authorities must ensure that contractors applying for the new subsidy offers guarantee high quality in implementation and hold good credit rating and reputation.

In general contractors are not investing in projects that have a small investment volume, e.g. single family houses habitating low income people. It is not clear yet, if and how that target group, often heating with fuel oil or natural gas can/will benefit from the new subsidies.

3.1.7 Media cooperation strategy

The Salzburg Provincial Government has many attractive offers for end consumers regarding deep or partial renovation of residential buildings and / or boiler replacements and there are also new information needs (the Gov. plans an oil boiler replacement bid in existing buildings when the old oil boiler breaks down), which they are not aware of.

In the next months a concept is being developed to determine which means (media) and which messages (wording) can be used to approach target groups effectively. The communication concept,

i.e. Activity 1 – Phase-out oil and gas marketing campaign, is to be developed in cooperation with Department 4/04 and a professional, suitable communication agency. It is planned that REPLACE co-finances this communication agency. During REPLACE, AEA and the sub-contractor are allowed use the channels of the State Media Centre together with Department 4/04. The State (LMZ) finances the use & realization of the media channels (e.g. printings, press articles, social media etc.). Further details see Activity 1.

AEA will sub-contract a second marketing institute for conceptualizing the campaign (Activity 1) and developing appropriate tools and content (story telling etc.) and for assistance in a successful implementation of the other T6.2 activities, namely the organisation "Raffeiner-Reputation".

Unfortunately it is not clear yet, at what time the communication agency, implementing Activity 1 can be contracted as the position in charge with the responsible provincial council was newly filled, recently. As the communication agency collaborating with AEA and Dept. 4/04 and Raffeiner-Reputation will have to align activities a clear picture of the Austrian Replace media cooperation strategy cannot be given in this report at this stage.

3.2 Bulgaria

As part of the REPLACE action, ten comprehensive oil and natural gas based space-heating systems replacement campaign activities will be realized in the Bulgarian Rhodope Region. The table below shows the planned actions together with the involved stakeholders and the planned time horizon for the actions.

Table 9: Overview about planned acrtions in the Rhodope Region

No.	Action	Timeframe	Stakeholders involved
1	Six techno-economic feasibility studies	Q3 - Q4 2021	Municipalities, households
2	Establishment of REPLACE (R)HC replacement information hubs	Q2/2021 – Q1/2022	Municipalities
3	Informing consumers about (R)HC heating systems' replacements at large consumer fairs and festivals	Q3 - Q4 2021	Municipalities, households
4	Informing consumers about cooling systems' replacements at large consumer fairs and festivals	Q3 - Q4 2021	Municipalities, households
5	Organisation of regional field trips to best practice RHC systems	Q3 - Q4 2021	Municipalities, intermediaries, households
6	Performing two to three Webinars to consumers	Q3 - Q4 2021	households
7	Facilitating the realization of innovative collaboration models between installers	Q2/2021 – Q1/2022	Investors, intermediaries, financial institutions

	and plant contractors		
8	Facilitating the realisation of collective actions	Q2/2021 – Q1/2022	Municipalities, households
9	Pilot project for residential heating replacement, initiated by a municipality	Q2/2021 – Q1/2022	Municipalities, households
10	Promotion and development of financial instruments	Q2/2021 – Q1/2022	Municipalities

3.2.1 Activity 1 - Six techno-economic feasibility studies

The feasibility studies could be valuable not only for the households where the studies are made, but for many residents in Rhodope region, if the focus of the studies is on typical houses and heating systems.

Figure 8: Typical inefficient firewood/coal stoves used in the Rhodope region

The REPLACE team in Bulgaria made a preliminary agreement with the administrations of seven Rhodope municipalities – Chepelare, Kardzhali, Ardino, Momchilgrad, Dospat, Devin, and Bratsigovo to implement one techno-economic feasibility study in the residential sector of each municipality. It is therefore planned to make 6 or 7 studies, depending on whether all administrations would keep their interest.

A typical building for each municipality will be assessed - in Kardzhali this is a multi-family building and in all others – a single family (1-3 families) building. Only households using typical inefficient heating technology (such fuelled by coal briquettes, fire-wood, and/or direct use of electricity) and interested to replace it will be covered.

A qualified expert in thermal engineering will carry out the feasibility studies and answer all potential questions of the residents. The tool T4.5 will be applied.

The implementation will follow the next steps:

1. Elaboration of criteria for the selection of households that would receive a free feasibility study;
2. Dissemination of information about the feasibility study opportunity;

3. Residents express their interest in getting a feasibility study; the applications are evaluated against the criteria and the buildings are selected;
4. Collection of all necessary information and data, either via onsite visits or distantly (e-mail or phone). Onsite visits are the preferred option, but restrictions such as COVID-19 pandemic may impose the alternative approaches.
5. Development of the feasibility studies, elaboration of reports with main outcomes, and sending the reports to the studied households. Households will have the opportunity to discuss the reports with the expert.

The results will be integrated in all relevant campaign materials – websites, brochures, presentations, etc.

3.2.2 Activity 2 - Establishment of REPLACE (R)HC replacement information hubs

The local authorities (municipalities) have close links to and are generally trusted by citizens in their position of independent information provider. So, the establishment of information hubs at the municipal administrations has the potential to reach many households and influence their heating solution.

Following the discussion with the municipalities in Rhodope region, various information hub opportunities emerged. Preliminary agreement to implement the following has been reached, considering the best channels to reach residents:

- In all involved municipalities: printed materials will be placed at appropriate locations in the buildings of municipal administrations and/or relevant municipal services.
- Bratsigovo municipality: information will be published at both the Facebook profile of the Mayor and the municipality website.
- Rhodopi municipality: REPLACE printed materials will be disseminated together with the municipal printed newspaper, which is widely distributed to all settlements in the municipality. Additionally, information materials will be disseminated through the municipality website and the Facebook profile of the Mayor.
- Ardino municipality: information will be published on the Facebook profile of the PR of the municipality, whose followers are most of the municipality residents.
- Devin municipality: the municipal website and Facebook profile will be used to disseminate REPLACE materials
- Dospat municipality: REPLACE information materials and/or publications will be made at the municipality website.

Figure 9: REPLACE printed materials in Bulgarian

The REPLACE team is in regular communication with the municipal administrations to organize the implementation of the above mentioned information measures. Electronic and printed materials will be regularly sent to the municipal administrations (e.g. to the Local Working Group member representing the municipality in REPLACE) as soon as they are available.

3.2.3 Activity 3 - Informing consumers about heating systems' replacements at large consumer fairs and festivals

We are planning roadshow in two locations: 1) Smolyan and 2) Pazardzhik or Plovdiv, co-organized by two H2020 projects: REPLACE and The NZEB Roadshow, https://cordis.europa.eu/project/id/892378. It will use a specially equipped caravan that will demonstrate energy efficient technologies for homes. Printed information materials about modern (efficient and clean) heating technologies will be provided. Heating experts representing REPLACE will be available to advise residents and promote the benefits of modern pellet boilers, solar collectors, efficient heat pumps, and others. The plan is to organize transportation (e.g. by hiring mini-busses) of interested citizens, policy makers, and company representatives from neighboring municipalities.

Figure 10: REPLACE + nZEB Roadshow demonstration caravan (illustration)

In addition to the roadshow, two other activities have been discussed with municipalities:

1. Participation at the annual fairs of towns and large villages; the fairs gather a large share of the citizens currently living and previously lived in the settlement. The fairs are useful for the

dissemination of printed materials and giving advice to residents in the area of sustainable heating solutions.
2. Informing the residents of Bratsigovo during a large-scale event at the Community Centre about sustainable heating solutions.

All of the above activities would depend on the development of COVID-19. As it is still highly uncertain, no particular arrangements have been made. It is unlikely that any of these activities can take place before the autumn of 2021.

The implementation of the Roadshow will follow the next steps:

1. Discussion with the municipal administrations on the following topics: most appropriate Roadshow date; promotion of the event; and logistical support, such as free space (e.g. at the town square), security, etc. Still this discussion cannot take place.
2. Organization of the events, jointly with "The NZEB Roadshow" – planning of activities, costs and their allocation between the projects, experts involved, transportation of people from other municipalities, etc.
3. Promotion of the roadshow within the Rhodope region.

The participation at the annual fairs of towns and large villages also requires preliminary discussion with the municipal administrations, as the latter are responsible for the fair organization.

3.2.4 Activity 4 - Informing consumers about cooling systems' replacements at large consumer fairs and festivals

Cooling system replacement (Action 4) will be promoted together with heating system replacement (Action 3). This is reasonable, because air conditioning systems cover both, heating and cooling demand. The benefits of advanced cooling solutions, such as efficiency, reliability, comfort, and health benefits will be promoted and demonstrated, where applicable.

This action will include several activities promoting sustainable cooling:

1. A roadshows in 1) Smolyan and 2) Pazardzhik or Plovdiv, co-organized by two H2020 projects: REPLACE and The NZEB Roadshow (see Action 3)
2. Participation at the annual fairs of towns and large villages (see Action 3).
3. Informing the residents of Bratsigovo during a large-scale event at the Community Centre (see Action 3).

The implementation will include the same steps described in the previous actions.

3.2.5 Activity 5 - Organisation of regional field trips to best practice RHC systems

The NZEB Roadshow (Action 3) can be organized only in central locations, such as Smolyan and Plovdiv/Pazardzhik. The plan is therefore to organize transportation (e.g. by hiring mini-busses) of interested citizens, policy makers, and company representatives from neighbouring municipalities/settlements.

For the Roadshow in Smolyan, transportation can be organized from the municipalities of Dospat, Devin, Chepelare, Ardino, Kardzhali, and Momchilgrad.

For the Roadshow in Plovdiv / Pazardzhik, interested stakeholders from Bratsigovo and Rhodopi municipality can be transported.

The implementation of this action includes:

- Development of a list of persons from other municipalities/settlements, interested to attend the Roadshow. The lists will be developed with the assistance of municipal administrations.

Organization of the transport – contract with a transport company.

3.2.6 Activity 6 - Performing two to three Webinars to consumers

To promote "REPLACE your Heating System Calculator" (T.4.5) and the "Online technology briefs with info-graphics" (T.4.2), we plan to organize 2-3 short webinars for the consumers both in Rhodope region and the other Bulgarian regions. The webinars will include several sections each:

1. Introduction about REPLACE, results so far, and coming results
2. Importance of heating systems replacement; multiple benefits
3. REPLACE calculator
4. Online technology briefs
5. Q&A session.

The webinars will be promoted by BSERC and the Local Working Group members, mainly the municipalities involved in the project.

The webinars will be run using the Zoom platform. The webinars will be recorded and uploaded (e.g. in YouTube), so that those who missed to participate online can access it later.

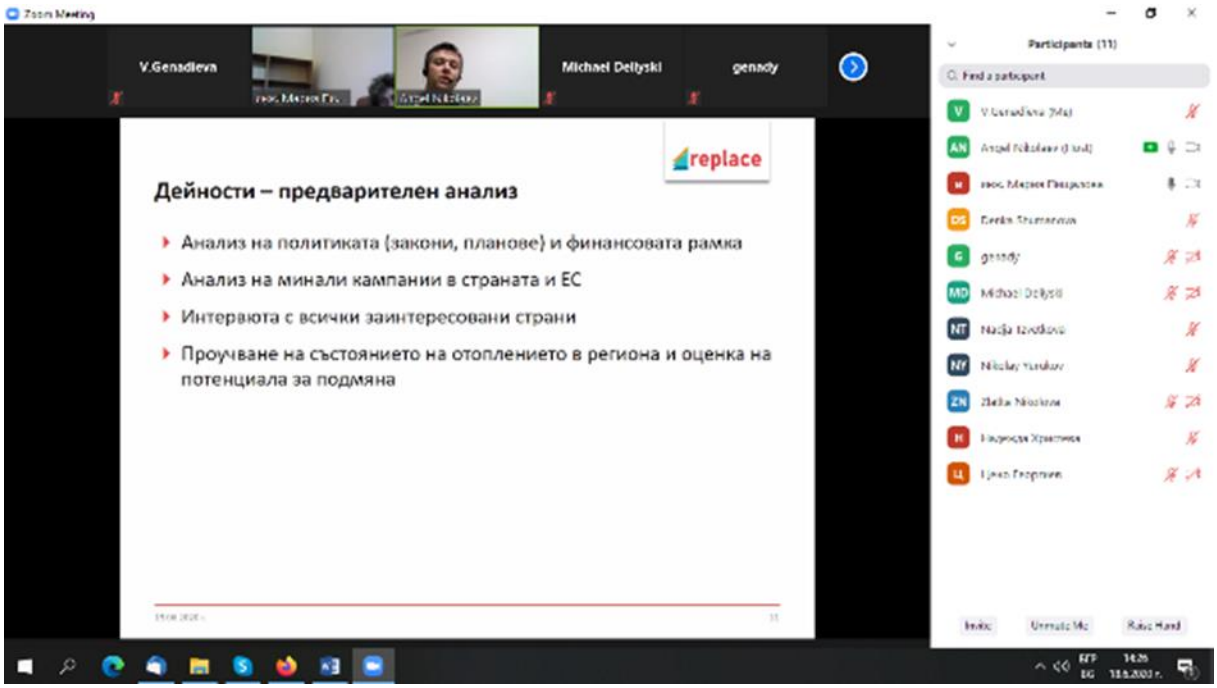


Figure 11: Screenshot of a past REPLACE webinar

The preparation of the webinars includes the arrangement of a webinar platform, preparation of presentations and the demonstration of the calculator.

Promotion of the webinars will happen through social media and press in Rhodope region and beyond.

3.2.7 Activity 7 - Facilitating the realization of innovative collaboration models between installers and plant contractors

This action aims mainly to overcome the barriers related to the residents' lack of expertise and lack of financing to cover the initial investment in a modern RHC technology. While a single project may be too small for a bank to be interested in lending, the plant contractor can aggregate several projects and/or develop standardized small projects regularly. Such a scale can be achieved by taking advantage of a wide network of installers who have access to potential clients.

An attempt to realize a pilot project together with interested plant contractors and financial institutions will be made. The collaboration model is still undefined.

The steps to implement this activity are:

1. Identification of potential plant contractors and financing institutions (completed)
2. Identification of promising collaboration models and discussion with the plant contractors and financing institutions to select the most feasible ones (in progress)

Model promotion to end consumers and support to its realization.

3.2.8 Activity 8 - Facilitating the realization of collective actions

In Rhodope region, the most common improvement of heating technology in the residential sector is the replacement of the primitive firewood stoves with pellet boiler-based installations. The purchase of pellets, therefore, becomes key. Many residents complain of low pellet quality and high (or at least fluctuating and unpredictable) price.

A pilot collective pellet purchasing action will be realized to assure high quality fuel (through the expertise of the group leader) and lower (wholesale) price.

Figure 12: Large-scale pellet supply

Currently there are no examples of collective pellet purchase in Rhodope region. Only one similar practice has been identified: the administration of Bratsigovo municipality assists residents to collectively purchase firewood, where the role of the municipality is to collect the orders of the interested households and negotiate on their behalf with the forestry companies.

The steps to implement this action are as follows:

- Interested municipalities in Rhodope region will promote the concept and gather households interested in collective pellet purchase;
- Meetings with groups of households to better understand their expectations.
- Arrangement of the relations within the energy cooperative, including appointing of a qualified person who would act on their behalf and arrange the purchase;
- Training and provision of bilateral support (advice) to the group leaders;
- Feedback from the involved households after the pellet delivery.

3.2.9 Activity 9 - Pilot project for residential heating replacement, initiated by a municipality

A targeted effort will be made to convince at least one of the municipalities to test a pilot project on their territory for replacement of heating in a household - either with funds from the municipal budget or private finance but closely monitored and steered by the municipality and REPLACE team. As currently EU and national funding for such an action is available only for larger municipalities we believe it would be an exercise that would open more doors in the future for the municipalities that dare to implement pilot projects. As a very minimum we will be going through the existing selection criteria and public procurement document sets of the ongoing programmes financing heating replacement in Bulgarian municipalities - OP Environment 2014-2020 and LIFE.

The following steps will be implemented:

- Promotion of the benefits for municipalities to go through the tendering process and implement heating replacement in at least one building;
- Making municipal administration familiar with the tendering documents;
- Assistance.

3.2.10 Activity 10 - Promotion and development of financial instruments

Through mapping of the existing funding opportunities - from loans to grants and hybrid programmes - BSERC would like to let the municipalities have an option to promote the existing instruments on their territories and eventually develop their own instruments to support the replacement activities in households.

The following actions will be undertaken in this regard:

- Mapping of funding opportunities (existing and planned) for heating replacement in the residential sector (completed);
- Discussion with municipalities to identify opportunities for both promotion of the collected information and establishment of own financial instruments (forthcoming);

- Assistance to municipalities for the promotion and development of the instruments (forthcoming).

3.2.11 Media cooperation strategy

Unlike the general dissemination activities of REPLACE, the media cooperation strategy is a part of the replacement campaign, which would take place mainly in Rhodope region, but also in the rest of Bulgaria. The media cooperation will aim to inform residents and motivate them to take a replacement action. A number of channels at municipal, district, and national level will be used: Facebook groups (the key one to reach residents), websites, radio, TV, physical and virtual events, and printed materials. So far about 60 relevant channels have been identified.

The media activities will be implemented in close collaboration with the Local Working Group members and other interested stakeholders, particularly the Association of Rhodope municipalities (ARM), district and municipal administrations, consumers, intermediaries, plant contractors, investors, equipment manufacturers, financial institutions.

The communication process related to the campaign is presented in the below figure.

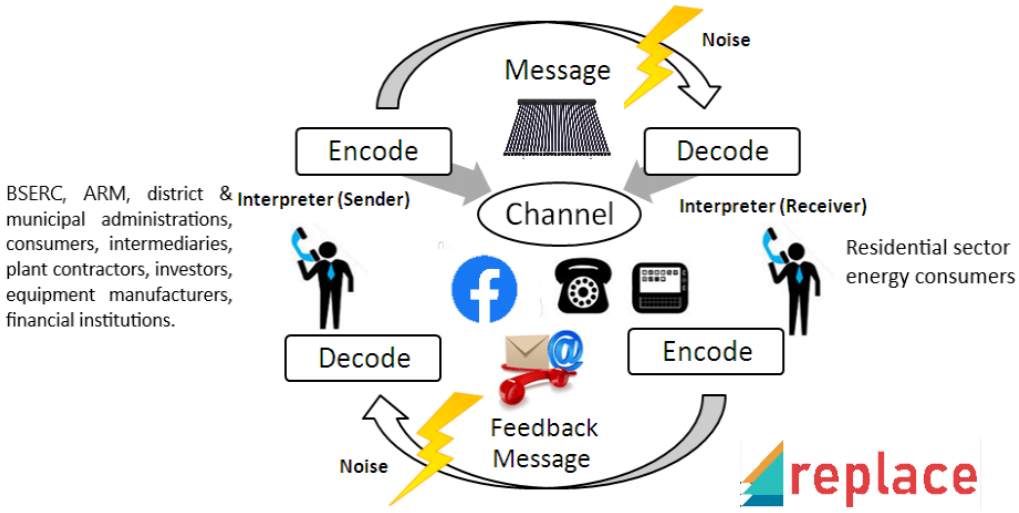


Figure 13: REPLACE communication process in Rhodope and the rest of Bulgaria

A simplified SWOT analysis regarding the media cooperation related to the replacement campaign is presented in the below figure.

Strengths - good knowledge about the region and target groups - good relations with all district and municipal administrations, respectively access to their media (FB profiles, websites)	**Weaknesses** - limited contacts with TV, radio, and press (about 60 in the region) - limited financial and person-month resources for a large-scale campaign
Opportunities - air pollution (high PM concentration) and health issues related to energy are becoming more important both for policy makers and consumers - climate protection and sustainability are	**Threads** - COVID-19 and its effect on events - low prices of natural gas - energy poverty - many are suspicious and unwilling to change their heating

serious concerns for some consumers	- availability of funding for heating replacement

Figure 14: Simplified SWOT about the media cooperation actions in Bulgaria

The following figure shows the schedule for the planned media activities for the Rhodope region, starting in April 2021 and scheduled to run until July 2022. In Rhodope region, strategic activities to foster the transfer to sustainable heating systems are planned in the categories media work, own media, social media and classical advertising.

For reasons of clarity, only the categories without the planned activities, and the months in which the activities are scheduled are shown below. The detailed table can be found in Annex I at the end of the document.

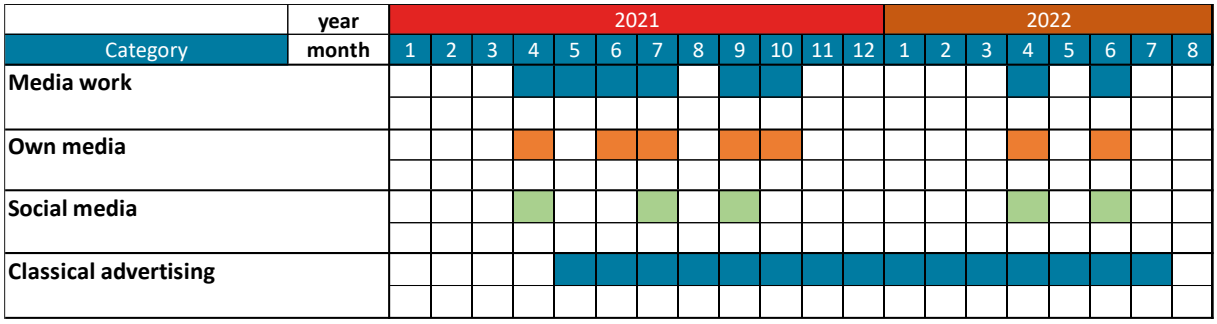


Figure 15: Simplified schedule of media activities to support the campaign in Rhodope Region

3.3 Bosnia-Herzegovina

As part of the REPLACE project, eight actions will be realized in the Sarajevo Canton. Fourteen actions were presented and explained to the members of the local working group, and the final selection was made based on the members' opinions on the necessity, but also the possession of conditions for implementation in this area. The realisation of the actions will require continuous cooperation between the authorities, installers and end-users, which will be assisted by the Ministry of Physical Planning, Construction and Environmental Protection of Sarajevo Canton.

Table 9 provides an overview of selected actions, direct and indirect stakeholders, and the time-frame for implementation. All of them will be implemented in the period April 2021 – September 2022 through sub-activities which will be explained in detail below.

All of the actions will be accompanied by intensive local media campaign. Since the Internet is currently the most used form of communication, the media campaign will be continuously conducted through web portals and social networks. It will include news about the Project, the results of actions, but also examples of good practice, successful implementation and experience of users from Bosnia and Herzegovina and the region.

Table 10: Information about the implementation of the chosen actions

No.	Activity	Timeframe	Stakeholders
1.	Six techno-economic feasibility studies	April 2021 – August 2022	• municipalities' representatives • energy experts • end-users

2.	REPLACE (R)HC replacement information hubs	April 2021 – September 2022	• municipalities • local communities • installers • end-users
3.	Heating systems replacements information at consumer fairs and festivals	April 2021 – September 2022	• municipalities • local media • end-users • events' organizers
4.	100% renewable heating or cooling labelling campaign	June 2021 – September 2022	• Ministry of Physical Planning, Construction and Environmental Protection of Sarajevo Canton • end-users
5.	Best practice RHC systems open day/house events	April 2021 – September 2022	• Ministry of Physical Planning, Construction and Environmental Protection of Sarajevo Canton • media representatives • installers • hosts • end-users
6.	Regional field trips to best practice RHC systems	April 2021 – September 2022	• Ministry of Physical Planning, Construction and Environmental Protection of Sarajevo Canton • media representatives • installers • hosts • end-users
7.	Knowledge transfer and capacity building of intermediaries and authorities	March 2022	• intermediaries • cantonal government representatives
8.	Show-case - realisation of collective actions	April 2021 – August 2022	• local communities' representatives • banks • microcredit organizations • authorities • end-users

3.3.1 Activity 1 - Six techno-economic feasibility studies

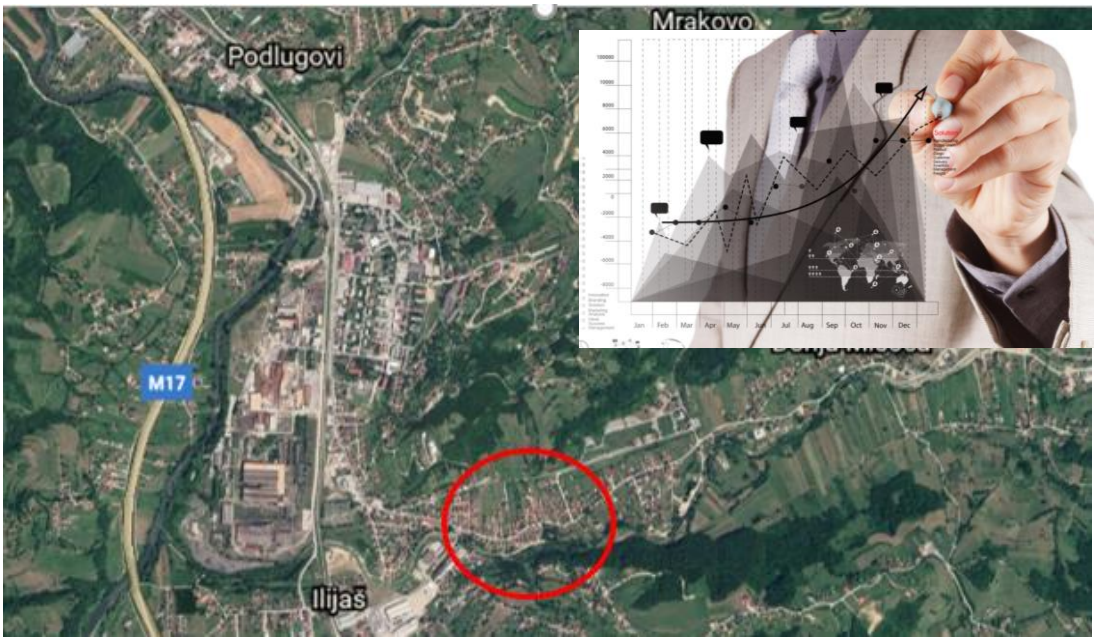


Figure 16: Conduction of techno-economic feasibility study (illustration)[20]

A large part of the population of Sarajevo Canton is not familiar with techno-economic feasibility studies and have no experience or knowledge. Therefore, this action will also serve as capacity building and it will encourage end-users to use this tool, since they do not use such an approach when choosing a heating or cooling system. The activity will be implemented with the support of municipalities representatives, in already determined micro-locations where municipalities plan to implement development projects within their development strategies and action plans, the consumers who need to replace their heating system will be identified. In this way, municipalities gain an insight into what investments are needed for implementation, and what benefits they realize with the same investment, which could enable them to develop their financial plan and strategy in the right direction.

Prior to conducting the techno-economic feasibility study, all identified beneficiaries will be acquainted with the Project, the execution procedure and the information that needs to be provided, as well as the contract between the beneficiary and the project team. Projects realized during campaigns life may become show cases, if consumers give their consent.

An overview of the planned activities of the Action, direct and indirect stakeholders and the time-frame can be found in the table below.

[20] https://www.poslovni.hr/hrvatska/kako-izraditi-cba-analizu-kljucni-dokument-za-vrednovanje-projekata-290755 and Google Earth

Table 11: Overview of the Activity 1 implementation plan

No.	Action	Timeframe	Stakeholders
1.	Meeting organization with the municipalities' representatives Beneficiaries identification	April 2021	Municipalities' representatives, end-users
2.	Informing beneficiaries about the Project	May 2021	Municipalities, end-users
3.	Conduction of six feasibility studies	June 2021 – August 2022	Energy experts, municipalities, end-users

Implementation barriers:

Due to the COVID-19 pandemic, all meetings will, if necessary, be organized online, depending on the recommendations of the competent institutions.

3.3.2 Activity 2 - REPLACE (R)HC replacement information hubs

Figure 17: Information hub (illustration)[21]

The Ministry of Physical Planning, Construction and Environmental Protection of Sarajevo Canton is the institution that raises citizens' awareness of the benefits of renewable energy sources through its

[21] https://twitter.com/EUScienceInnov/status/877530926275809281/photo/2

programs and actions, but also finances the replacement of heating systems based on the use of fossil fuels.

Given that the Ministry or the Government of the Sarajevo Canton is the umbrella body of authorities and management, Action activities will start from the cantonal and will descend to lower levels of government. Through the already held meetings with the representatives of the Ministry, it was agreed to establish information hubs in their premises, which will offer project flyers, technology briefs, handbooks, information on REPLACE offers and activities etc.

One of the activities will include meetings with representatives of municipalities to agree on the installation of hubs inside or near their offices, as these places are visited daily by Sarajevo residents. Installers, who part of the working group, will also be suggested to establish hubs in their facilities, which are also often visited by the citizens in need for heating/cooling services and technologies, therefore information about REPLACE project could be very useful to them.

Meetings with representatives of local communities are also planned, in order to intensify promotion through outdoor hubs, but also to enable access to information for as many people (end-consumers) as possible.

Figure 18: Information dissemination pyramid (illustration)

An overview of the planned activities of the Action, direct and indirect stakeholders and the time-frame can be found in the table below.

Table 12: Overview of the Activity 2 implementation plan

No.	Action	Timeframe	Stakeholders
1.	Meeting organization with the municipalities' representatives and installers	April 2021	Municipalities, installers, end-users
2.	Meeting organization with the local communities' representatives	May 2021 – July 2022	Local communities, end-users
3.	Establishment of the information hubs	May 2021 – September 2022	End-users

Implementation barriers:

Due to the COVID-19 pandemic, all meetings will, if necessary, be organized online, depending on the recommendations of the competent institutions.

3.3.3 Activity 3 - Heating systems replacements information at consumer fairs and festivals

Figure 19: Consumer fair (illustration)[22]

Specific consumer fairs and festivals are not organized often in Sarajevo Canton, and if they are, they are mostly focused on agri-food activities, not on energetics sector. This is a limiting circumstance for this Action. However, all similar events, which end-users visit, will be identified, and through meetings with the organizers, efforts will be made to arrange the installation of stands with all the important information on the replacements of the heating system.

An overview of the planned activities of the Action, direct and indirect stakeholders and the time-frame can be found in the table below.

Table 13: Overview of the Activity 3 implementation plan

No.	Action	Timeframe	Stakeholders
1.	Identification of fairs, festivals and similar events	April 2021	Municipalities, local media, end-users
2.	Meetings with the organizers	May 2021 – July 2022	Events' organizers
3.	Installation of the information stands	June 2021 – September 2022	Organizers, end-users

[22] https://www.mediaweek.com.au/bauer-media-luxury-disruptive-initiatives-advertisers-2019/

Implementation barriers:

Due to the unpredictable development of the situation related to COVID-19, it is possible that events that gather a large number of people will not be held in the next year or two. In this case, Action 3 "Heating systems replacements information at consumer fairs and festivals" will involve an intensive media campaign and promotion on social networks and websites.

3.3.4 Activity 4 – 100 % renewable heating or cooling labelling campaign

Figure 20: 100 % renewable energy label (illustration)[23]

In September 2020, the Government of Sarajevo Canton has given its consent for the implementation of the pilot project "Subsidizing the replacement of coal stoves and other solid fuels in households in Sarajevo Canton with certified furnaces and heat pumps". Ministry of Physical Planning, Construction and Environmental Protection of Sarajevo Canton signed the Agreement with UNDP, as the implementer of the project.

Considering that a mass heating systems replacement will take place in the Canton, it has been confirmed with the representatives of the Ministry that all beneficiaries of the mentioned project will receive a 100% renewable heating label. Also, during previous actions, through conversations with citizens, efforts will be made to identify end-users who have also made the transition to renewable energy technologies. Promoting good practices from the immediate environment shall motivate other consumers to switch their system to renewables, too.

[23] https://selectra.co.uk/energy/news/environment/london-tube-heats-islington-homes

Table 14: Overview of the Activity 4 implementation plan

No.	Action	Timeframe	Stakeholders
1.	100% renewable heating or cooling households labelling	June 2021 – September 2022	Ministry of Physical Planning, Construction and Environmental Protection of Sarajevo Canton, end-users

3.3.5 Activity 5 - Best practice RHC systems open day/house events

Figure 21: Open day/house event (illustration)[24]

Interested consumers will be able to visit households which have already switched their heating or cooling system and, by their fellow citizens, get a direct insight into the benefits that have been realized. Such activities have not been organized in Sarajevo before, so a great response of the population is expected.

[24] https://www.revisionenergy.com/blogs/solar-open-house-in-durham-nh-draws-a-crowd/
https://www.slideshare.net/AatirAbdulRauf/virtual-open-day-open-house-platform-vfairs

Visits will be organized to beneficiaries of the "Subsidizing the replacement of coal stoves and other solid fuels in households in Sarajevo Canton with certified furnaces and heat pumps" project, participants of good practice from our, already formed, brochure, but also to other consumers who will be identified through the previously mentioned actions and consultations with installers (who can recommend their clients). The hosts will receive a fee of 50 euros.

An overview of the planned activities of the Action, direct and indirect stakeholders and the time-frame can be found in the table below.

Table 15: Overview of the Activity 5 implementation plan

No.	Action	Timeframe	Stakeholders
1.	Identification of the hosts (end-users who have already switched their heating or cooling system)	April 2021	Ministry, installers, end-users
2.	Promotion of the open day/house events through media campaign and social networks	May 2021 – August 2022	Media representatives, end-users
3.	Organization of the events	July 2021 – September 2022	Hosts, end-users

Implementation barriers:

Due to the unpredictable development of the situation related to COVID-19, it is possible that events that gather a large number of people will not be held in the next year or two. In this case, virtual alternatives which show already installed renewable heating or cooling systems will be considered.

3.3.6 Activity 6 - Regional field trips to best practice RHC systems


Figure 22: Field trips (illustration)[25]

Considering that field trips are among the most effective ways of stimulating a technology diffusion process, this Action will be approached with great care. Since the population of Sarajevo Canton does not often encounter such activities, after identifying best practice examples from the country and the region, intensive media campaign and internet promotion will be organized, so that as many citizens as possible are informed and familiar with the planned filed trips. In addition to end-users, we will try to involve as many installers as possible. Their direct contact with consumers will also be used to promote the Action.

Field trips will include visits to already installed renewable energy systems, such as solar panels at the Vilinac mountain lodge in Jablanica, but also to established energy and consumer associations in the region, since such a practice is not present in Bosnia and Herzegovina.

An overview of the planned activities of the Action, direct and indirect stakeholders and the time-frame can be found in the table below.

Table 16: Overview of the Activity 6 implementation plan

No.	Action	Timeframe	Stakeholders
1.	Identification of the best practice RHC systems	April 2021	Ministry, installers, end-users
2.	Promotion of the field trips through media campaign, social networks and direct contact with consumers	May 2021 – August 2022	Media representatives, installers, end-users
3.	Organization of the field trips	July 2021 – September 2022	Identified hosts, installers, end-users

[25] https://www.vilinac.ba/ba/psd-vilinac-jablanica-o-nama/psd-vilinac-aktivnosti.html
https://sist.shanghaitech.edu.cn/sist_en/2015/0518/c3863a32744/page.htm

Implementation barriers:

Due to the unpredictable development of the situation related to COVID-19, it is possible that events that gather a large number of people will not be held in the next year or two. In this case, virtual alternatives will be considered.

3.3.7 Activity 7 - Knowledge transfer and capacity building of intermediaries and authorities

Figure 23: Training (illustration) [26]

Energy poverty is a burning problem in Sarajevo Canton and Bosnia and Herzegovina in general. In addition to the lack of programs to help vulnerable households, the lack of knowledge in the implementation of energy efficiency measures related to sustainable heating systems and the choice of the most efficient option is also a difficulty.

The Activity includes the organization of a one-day training program for intermediaries and cantonal government representatives in order to transfer knowledge and build capacity in the field of energy poverty. The lecturer will be an experienced expert from one of the developed countries of the European Union, most likely Austria or Germany.

[26] https://www.alert-software.com/blog/effective-employee-training-program

One session will be fully dedicated to installers and effective measures they can implement to reduce household energy consumption. During the second session, government representatives will be introduced to the experiences in developed European countries and the programs implemented by the authorities in order to solve the problem of energy poverty.

In this way, in addition to knowledge transfer and capacity building of these two groups, networking is achieved and government representatives get contacts from trusted people they know will do the job in the best possible way.

As a result of the training a one- or two-page hand-out paper will be made with info-graphics for households that suffer energy poverty showing what they can do related to behavioral changes and what low hanging investment option or any similar measures they can do, showing the benefits of such activities and where they can get further support. The paper will be delivered to vulnerable households by intermediaries and social services that visit them, in order to enhance the visibility of the collective action and to make behavioral changes.

Since the training is planned for the spring of 2022, a live gathering is expected and a budget of 1,500 € will be spent on paying for an external expert (lecturer), translator and refreshments. In case of a difficult epidemiological situation, the training will be organized online.

An overview of the planned actions of the Activity, direct and indirect stakeholders and the time-frame can be found in the table below.

Table 17: Overview of the Activity 7 implementation plan

No.	Action	Timeframe	Stakeholders
1.	Identification and organization of online meetings with external expert	December 2021	EU expert
2.	Creating a list of participants and sending invitations	January 2022	Cantonal authorities, intermediaries
3.	Implementation of the one-day training program	March 2022	Cantonal authorities, intermediaries

Implementation barriers:

Due to the COVID-19 pandemic, training program will, if necessary, be organized online, depending on the recommendations of the competent institutions.

3.3.8 Activity 8 - Show-case - realisation of collective actions

Figure 24: Collective actions (illustration)[27]

Collective actions are a rare practice in Sarajevo Canton. The population does not decide on joint investments for a number of reasons: mistrust, lack of information, inability to raise collective credit, lack of mechanisms to protect tenants, etc.

The activities of the Action will primarily include meetings with representatives of local communities, but also banks, microcredit organizations and the authorities, with the aim of finding solutions to their problems. Examples of good practice from the region will also be identified, with the aim of pointing out the benefits of collective actions, but also the transfer of knowledge and replication of the same in the Sarajevo Canton.

An overview of the planned activities of the Action, direct and indirect stakeholders and the time-frame can be found in the table below.

Table 18: Overview of the Activity 8 implementation plan

No.	Action	Timeframe	Stakeholders
1.	Meetings with local communities' representatives, banks, microcredit organizations and the authorities	April 2021	Local communities' representatives, banks, microcredit organizations, authorities
2.	Identification of the best practice examples from the region	May 2021	End-users from the region

[27] https://www.irishtimes.com/business/innovation/big-problems-require-large-collective-actions-not-solutions-1.3094628

3.	Promotion and assistance in collective actions' organization	June 2021 – August 2022	Local communities' representatives, banks, microcredit organizations, authorities, end-users

Implementation barriers:

Due to the COVID-19 pandemic, all meetings will, if necessary, be organized online, depending on the recommendations of the competent institutions.

3.3.9 Media cooperation strategy

Selected actions will be accompanied by a tailor-made media cooperation strategy, in order to inform target groups about campaigns and motivate them to take action, to raise awareness among citizens and to build capacity for future similar activities/projects. This will be achieved with consumers, intermediaries, investors/owners, equipment manufacturers/sellers, energy experts and cantonal and municipal authorities in time period from March 2021 to September 2022.

Media cooperation strategy will mostly target Canton of Sarajevo, but it will be extended even more when needed (Heating systems replacements information at consumer fairs and festivals; Regional field trips to best practice RHC systems).

Through a PR analysis we defined target groups and tried to estimate their point of views, as well as possible partners and critics. Besides strengths and opportunities, PR analysis covered weaknesses of the Company, and possible external risks. These information are summarized in the table below.

Table 19: PR analysis used for the Action Plan in Bosnia-Herzegovina

PR analysis	
Target groups and their point of views	Consumers: open and interested Intermediaries: interested Investors/Owners: interested Equipment Manufacturers/Sellers: interested
Possible partners	Ministry of Physical Planning, Construction and Environmental Protection of Sarajevo Canton Municipalities Local communities Mechanical Engineering Faculty Sarajevo Banks and Microcredit organizations
Possible critics	Installers, chimney sweepers Manufacturers/Sellers of the coal boilers Climate protection and energy transition sceptics Suppliers of fuel oil/coal

Own strengths	Very good interlinking in the region Good contact with the Ministry of Physical Planning, Construction and Environmental Protection of Sarajevo Canton Content-related competence Many years of experience in projects in the field of energy efficiency and the use of renewable energy sources Good cooperation with manufacturers of boilers and other heating systems
Own weaknesses	Limited financial resources
External opportunities	Air pollution is a burning issue in Sarajevo Canton, citizens have, through previous projects, expressed interest in contributing to its solution Climate protection and sustainability are relevant topics in society People can save energy and money (immediately for heating bills) when switching to renewable energy source (with a mid- to long-term pay-off of investment, depending on subsidies/incentives)
External risks	COVID-19 pandemic and effects on economy/personal income of target groups COVID-19 pandemic and effects on events and meetings Low prices for fossil fuels Higher prices of pellets and wood chips Affordability and finance-ability of climate-friendly heating systems with higher up-front investment Energy poverty Availability of funding Split incentives (house owner and tenant perspective, legal barriers) Lack of incentives for the installation of heat pumps, pellet boilers Lack of media interest Insufficient interest of the authorities in improving the heating system in the Sarajevo Canton

Most important benefits from campaigns for target groups are as follows:

Consumers:

- Acquiring knowledge about renewable energy systems (fairs and information hubs)
- Gain reputation: can show their commitment (100% labelling campaign)

- Becoming familiar with systems in practice (field trips, open days/house events)
- Possibility to talk to experts (fairs, field trips, open days/house events)
- Networking with installers, equipment sellers, banks, microcredit organizations…
- Saving energy, CO2 and money
- Contributing to the better air quality
- Improving comfort and living standards

Intermediaries:

- Acquiring knowledge about renewable energy systems (fairs, information hubs, field trips), therefore gaining possibility to expand their services
- Acquiring knowledge about innovative collaboration models (ESCOs)
- Possibility to talk to experts (fairs, field trips, open days/house events)
- Networking
- Gaining opportunity to present their problems and concerns to the authorities

Investors/Owners:

- Acquiring knowledge about renewable energy systems (fairs and information hubs)
- Acquiring knowledge about innovative collaboration models (ESCOs)
- Becoming familiar with systems in practice (field trips, open days/house events)
- Networking
- Gaining opportunity to present their problems and concerns to the authorities
- Possibility to talk to experts (fairs, field trips, open days/house events)
- Saving energy, CO2 and money
- Raising the value of their assets and gaining good reputation

Equipment Manufacturers/Sellers:

- Acquiring knowledge about renewable energy systems (fairs, information hubs, field trips), therefore gaining possibility to expand their services
- Acquiring knowledge about innovative collaboration models (ESCOs)
- Possibility to talk to experts (fairs, field trips, open days/house events)
- Networking
- Possibility to talk to different consumers and learn about their needs, difficulties and requirements

USP

- At least 6 feasibility studies: free of cost studies with a regionally adapted tool
- Informing consumers at fairs and information hubs: getting information at the doorstep
- Open House Day: visiting hands-on best practices in the region
- Regional field trips: Hand-on best practices in the region
- Help to reduce complexity and confusion because of different (often biased) information; providing the opportunities to talk with the experts from the filed
- Enabling networking and facilitating collective action

There are different topics we want to be told through media channels. Some ideas, depending on the occasion, are:

Table 20: Overview about topics for concrete occasions

Occasion	Topics
Feasibility studies	Informing chimney sweepers and installers about possibility and labelling benefits Informing consumers about action
REPLACE (R)HC replacement information hubs	Informing consumers about information hubs' locations (indoor and outdoor)
Heating systems replacements information at consumer fairs and festivals	Additional information on heating system replacements when advertising fairs and festivals
100% renewable heating or cooling labelling campaign	Informing consumers about possibility to gain the label Promoting successful stories
Best practice RHC systems open day/house events	Informing citizens about events and first-hand information they can get
Regional field trips to best practice RHC systems	Informing consumers, installers and investors about field trips Promoting best practice examples Giving the opportunities to talk with experts; Interviews with the experts
Inspection of boiler rooms with free energy advices from installers	Informing citizens about the inspection, its benefits and first-hand information they can get Promoting successful stories, interviews with the beneficiaries
Show-case - realisation of collective actions	Promoting collective actions concept, benefits and potential Successful stories from the region, comparison and analysis
Advertising campaigns and potentially taking up external topics (studies or the like) & resulting news	RHC systems in the context of: CO_2 reduction, money savings, combating climate change, contribution to air quality… Renewable energy potential in Sarajevo Canton/Bosnia and Herzegovina Simplified EU legislation and future plans (e.g. https://nltimes.nl/2018/03/28/call-ban-gas-heating-boilers-netherlands-2021)

Additional stories that could be reported:

1. Presenting advanced consumer
    - Presenting personal motivation
    - Reporting on 100% renewable heating/cooling label (if possible)
    - Reporting on open-house day event
2. Presenting advanced investor
    - Presenting personal motivation
    - Organizing field trip to site & report on trip

3. Presenting collective action
    - Following group from beginning to end

Some of the solitary occasions for news might be: Sustainable Energy Week, World Environment Day, Earth Day, World Ozone Day etc.

Besides topics and stories in media, for actions' promotion we developed some creative ideas:

- Creative photoshoot sessions for advertising purposes, before (to announce actions) and after (to promote actions' results)
- Interactive information hubs (photo props, post-it notes, DIY section)
- Promotional video filmed with citizens (e.g., interviewing them about their doubts and concerns – first part of the video, then promoting field trip/open day event – place where they can find the answers – second part of the video)

Instruments that will be used in media cooperation strategy are from seven different categories, as follows:

- **Media work:** press releases
- **Personal contacts:** politicians, other mediators and multipliers, stakeholders
- **Own media:** flyers, Internet presence
- **Social media:** social networks (Facebook, LinkedIn, Twitter)
- **Face-to-face meetings:** demonstration hubs
- **Direct communication:** mailing
- **Classical advertising:** spot, posters

It is important that all activities related to the media strategy have a certain chronological order, taking into account the time frames of project actions. Media activities should be implemented continuously while a certain project action is taking place.

Figure 25 gives an overview about the schedule of the actions. For reasons of clarity, only the categories without the planned activities, and the months in which the activities are scheduled are shown below. The detailed overview can be found in Annex II at the end of the document.

	year	2021												2022							
Category	month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
Media work																					
Personal contacts																					
Social media																					
Direct communication																					
Classical advertising																					
Face-to-face meetings																					

Figure 25: Simplified timeframe of media actions to support the activities in Sarajevo canton

3.4 Croatia

REPLACE activities take are implemented in two different regions in Croatia. In North-West Croatia and also in Primorsko-goranska county.

3.4.1 North-West Croatia

3.4.1.1 Activity 1 - Initiating intermediary campaign to bridge the gap between citizens and available funding possibilities offered by county governments

County governments in North-West Croatia have until now co-financed replacement of old inefficient boilers with new RES heating systems and REPLACE resources will be used to support county governments in implementing and marketing these public calls and funds, as well as to provide support to the citizens/end users who have decided to replace their old heating systems and use available funding.

REGEA as an experienced party in managing projects funded by a range of different sources, from grants and subsidies, third party financing to own-source funding, will research available funding options and match them with project requirements. Besides identifying potential funding sources, REGEA will explore opportunities to bring together commercial and development banks, which may result in more favourable funding for end-users.

3.4.1.2 Activity 2 - Eight techno-economic feasibility studies (regarding single object supply) for free for end consumers

Based on the questionnaire prepared and distributed by the AEA and Hexit tool, REGEA will produce six techno-economic feasibility studies for the homeowners interested in replacing their old boilers with new, efficient ones. This year, 2020, the Environmental Protection and Energy Efficiency Fund published a public call for co-financing purchase and installation of renewable energy heating system and there is a strong possibility that similar call will be published next year as well. With that in mind, REGEA will consider starting this activity prior to publishing the call so that potential applicants have the opportunity to consider different renewable energy systems. As indicated in the project proposal and grant agreement, feasibility studies will be prepared following building type categories outlined in the table below.

Table 21: Feasibility studies based on building types and heating systems used

Building type	Number of studies	Current heating system	REPLACE option
Single family house	4	Fuel oil	Solid biomass boilers
Multifamily house	3	Fuel oil	Solid biomass boilers
Large volume building (multi-apartment building)	1	Natural gas	District heating system

A pool of interested parties will be gathered by utilising REGEA's online reach and social media presence and people interested in replacement of their old boilers will have the opportunity to apply for the preparation of individual feasibility study. Based on the pool of people, input data required for the feasibility assessment of replacing old heating system in a family home or apartment will be

collected in conversation with interested parties, either through face-to-face visits, online exchange of data or phone calls.

After the feasibility studies are finalised, REGEA will prepare a report about each case study, outlining the main findings and results, as well as what happened with the installation of a new system after the feasibility study has been finished. If possible and within the time frame of the project, these case studies may become showcases for other campaign activities.

3.4.1.3 Activity 3 - Establishment of Citizen's Info Hub

Citizen's Info Hub will be operated by REGEA in its three local offices (Krapina-Zagorje County, Zagreb County and Karlovac County) and it will serve as a place where citizens can come and find out more about the replacement options but also about the project itself.

At REGEA's premises, a dedicated place will be set up with project flyers, technology briefs, handbooks, information on REPLACE offers and activities, etc., which will be publicly accessible for everyone interested. Alongside these materials, contact details of relevant REGEA's personnel will be made available so that interested citizens can talk about the REPLACE project and explore replacement options.

In addition to the aforementioned activities, the continuous sharing of project materials and lobbying for the project objectives by the hubs will spring up the idea of sustainable heating and cooling (efficient, economically resilient, clean and climate-friendly) among the citizens of target regions and will lay the ground for project realization in the near future.

REGEA already established one info hub in Krapina-Zagorje County (City of Zabok). The info hub is equipped with various project and promotional materials, which are prepared and disseminated within the REPLACE project, such as project flyers in Croatian language, Best practice examples from project countries translated into Croatian, promotion material on residential heating systems (logwood, pellets, woodchip heating systems, heat pumps, solar collectors) from producers and installers which are part of the LWG .

The main goal of the info hubs is to raise awareness about the use of renewable sources and help consumers to take informed decisions how to replace their inefficient (R)HC systems towards modern climate-friendly, economic resilient and efficient RHC systems. Info hubs will work during the whole lifetime of the REPLACE project and beyond. Figure 18 shows how the Prefect of the Krapina-Zagorje County visited the info hub of the REPLACE project.

Figure 26: Info hub in the Krapina-Zagorje County

3.4.1.4 Activity 4 - Informing consumers about (R)HC heating systems' replacements and related REPLACE offers and activities at large consumer fairs and festivals

Large consumer fairs and festivals are a good place to meet with interested citizens, but also with facilitators, investors, and installers. REGEA will research and identify relevant festivals and fairs in 2021 and 2022, related to renewable heating and cooling. Based on the results of this research, REGEA will apply to participate as an exhibitor to present and inform fair visitors about (R)HC heating systems' replacements and related REPLACE offers and activities. However, due to the COVID-19 pandemic and potential restrictions on large gatherings, this activity may have to be adjusted to fit potential virtual fairs and festivals.

To start off with the activity, REGEA has started researching major fairs, festivals, and expos, not only on a regional level but also on the national level to find the most relevant ones. Besides desk research, LWG members will also be asked to suggest potential events, which may have a larger reach. The most prominent channels with a high coverage which could be used to disseminate (R)HC heating systems' replacements are the following:

- International Biomass Conference, the largest annual event in Croatia dedicated to biomass energy use which attracts more than 200 biomass energy experts.
- Zagreb Energy week, an annual event with a dedicated international conference for promotion of domestic and EU projects and initiatives, attracting mostly representatives of public authorities and members of the Croatian Covenant of Mayor's club.

Figure 27: Example of Consumer fair in Karlovac County

After deciding about the events which will be attended, REGEA will apply to participate as an exhibitor at the event. In case the events are switched to virtual events, the concept of the activity will remain the same, but the implementation of the activity will be adjusted.

3.4.1.5 Activity 5 - The organisation of regional field trips to best practice RHC systems for consumers/intermediaries/investors

Field trips are among the most effective ways of stimulating a technology diffusion process and engaging potential users. Field trips will be organised in agreement with LWG members and their suggestions as they are mostly "on-the-field" and are aware of the best options for this kind of activity.

LWG members will be consulted to determine potential field trip locations. These field trips can be organised during the heating season so that the visitors can see how the system works and experience benefits and potential deficiencies. The participants will be determined based on the internal agreement.

Figure 28: Example of study tour - pellet boiler installed in Energy Centre Bračak in Krapina-Zagorje County

3.4.1.6 Activity 6 - Performing two to three Webinars on the usage of the consumer-friendly "REPLACE your Heating System Calculator" (T.4.5)

Tools and documents developed within REPLACE will be presented and explained in a number of webinars intended for interested consumers.

The webinars allow to easily reach a high number of participants in a time and cost-effective way as there is no need for travel to a certain location for a conference or workshop. Webinars will be advertised on REGEA's social media, as well as in the local media to gain a wider reach. After registering for the online event, participants will receive an e-mail with the link for the virtual event. Webinars will be hosted on Microsoft Teams platform and recorded for the future use so that participants who could not attend webinar have an opportunity to listen to it in their own time.

The moderator or the expert can directly answer upcoming questions. A recording of the webinar – the presentation as well as the questions from the audience – can be made available on the internet.

The webinar will have various parts: Introduction, main presentation about project REPLACE including the presentation of feasibility studies, heating systems calculator. It was planned to have external speakers from the leading Croatian thermo-technical equipment manufacturer Centrometal for the use of renewable energy sources (e.g. wood, pellets, wood chips and sun).

The original idea and plan of the webinars is to use them as an efficient way to disseminate the REPLACE approach to inform and motivate consumers, target regions (municipalities, cities) to replace their old and inefficient HC appliances with better, greener alternatives with the benefit of monetary savings and improvements in air quality, comfort, safety, and security of supply.

3.4.1.7 Activity 7 - On-site information's evenings for end consumers to replace fuel boilers

The experiences from Austria, Germany and other European countries showed that such events proofed to be successful and they are one of the key success factors for the involvement and participation of the citizens from the very beginning in projects dealing with RES. Citizens and key stakeholders need relevant and reliable information to be convinced, motivated, and encouraged for taking the initiative and supporting the implementation process of heating and cooling systems in their communities. Since relevant information about the potentials of renewable heating and cooling systems is still lacking in the North-West Croatia, REGEA with support of the LGW members will hold 2-3 events with local authorities and citizens in target regions.

The main goals of the on-site information evenings for end consumers to replace fuel oil boilers will be the following:

- Informing citizens about the purpose and objective of the project,
- Highlighting advantages of the renewable heating and cooling systems as well as communicating the benefits of the boiler replacement.
- Presenting the necessary steps to realise the project;
- Creating acceptance and confidence;
- Stimulating discussions among the citizens about the project;
- Showing different technical options and explain management models, use best practice.

Education and awareness raising for citizens and local authorities play a key role in understanding why it is necessary to act locally and what can be done by individuals, to foster energy transition in region. Municipalities can take a leading role here. When the municipalities develop the public awareness raising strategy on energy transition towards renewable energy sources and on energy saving measures they have to keep in mind that consumption patterns of citizens are habitual and it takes time and effort to overcome old habits and change towards the new paths. Raising awareness and building capacities among the involved citizens and key actors in the target regions thus is also one of the core targets of the REPLACE project to secure a sustainable management of the heating and cooling sector in the future.

3.4.1.8 Activity 8 - Facilitating the realisation of collective actions

The main goal of this activity is to involve different stakeholders of the target communities in the project activities, including citizens, children, local and regional authorities, LWG members etc. This will contribute to ensuring the sustained public acceptance of renewable energy projects and

renewable energy overall, while considering the implications of the substantial increase in the share of renewable energy sources in the final energy consumption.

Collective actions which can potentially be implemented, and which were initially discussed as the most promising in NW Croatia region are:

1. **Open day/house event regarding best practice RHC systems.**

Bračak Manor will be chosen for the showcase, should serve as an innovative demo centre of excellence and knowledge in energy efficiency and renewable energy sources. The Manor is already now used as a demonstration centre for good practices in the heating systems. The manor was built in the period 1889-1890 and it is a protected cultural and heritage monument listed in Register of Cultural Goods of the Republic of Croatia, and it is owned by Krapina-Zagorje County, one of the founders of REGEA. Bračak was reconstructed and restored in 2017 and is a unique example of energy rehabilitation of a historic building under cultural heritage protection focusing on two aspects – application of advanced technical solutions and retrofitting of a public building. The building has been refurbished to low energy standards and uses 88% of renewable energy sources for heating and cooling. A central monitoring and management system was installed for the heating, cooling and ventilation system (HVAC) and lighting. Today the Bračak Manor is used as a central place for organizations, companies and institutions interested in renewable energy as well as small and medium companies (SME) from other sectors. It also serves as a business incubator for young companies with a favourable lease of business office space. The main objective of the Bračak Manor is continuing education, exchange of experience and information to all stakeholders on the sustainable use of energy. REGEA will invite chimney sweepers and installers, citizens, stakeholders in target regions to see the Bračak Manor, to learn more about installed technology - wood pellets boiler for heating and micro CHP for hot water and power production, to educate and inform them about benefits of such heating systems that can be seen in live. This action will purchase the customers to make the best decision and to reduce heat consumption in their homes but at the same time provide thermal comfort. Bračak will provide a good showcase to all stakeholders which can benefit in sense of improved energy efficiency and increase usage of renewable energy sources and lower costs for energy.

2. **Organizing the educational program „With knowledge to the energy savings“for children of primary and secondary schools in target regions.**

Krapina-Zagorje County with support of the REGEA has been implementing this program for 12 years and wants to replicate to other regions.The contest promotes the knowledge of energy saving criteria and renewable energy sources, raising awareness on the importance that everyday behaviors have on the environment, driving at virtuous behaviors and actions oriented to the sustainable consumption, as well as to the dissemination of good practices for the education to sustainable energy. As a matter of fact, the first step to achieve EU objectives on reduction of greenhouse gas and to fight against climate change is to involve the younger generation (and the school system) because they are the citizens of the future.

The programme represents an education and awareness activity. It focuses on the direct and strategic involvement of local bodies, small communities and schools fostering their cooperation an integration to increase energy efficiency and use of renewable energy sources on their territories. Organisation activities will be performed by REGEA, and the schools will be selected by the local government in target counties. The implementation of this action will be supported by photographs and presentation with a brief overview of the organized event by publishing it on the REGEA website and / or media pages.

3. **Energy-savings campaigns with annual labelling for boilers by installers and chimney sweepers.**

The energy-saving campaign will be initiated in the North West Croatia with the help and support of the chimney sweepers and installers. The main objective of the offensive will be to label existing boilers in households visited by the chimney sweepers and installers, as well as communicating the benefits of the boiler replacement. Before the start of the campaign activity, installers and chimney sweepers will be reached through their representatives, who are members of the LWG. Installers and chimney sweepers will be invited to participate in the (R)HC policy programme or measures development workshops (T.5.2), where a separate session can be organised to introduce them with the activities to be implemented, e.g. labelling activity. In this session, labels and folders can be distributed to chimney sweepers and installers, which they will use to carry out this activity.The high season of boiler service and maintenance is in the autumn before the heating season or at the beginning of the heating season. During that time, chimney sweepers and installers are inspecting and servicing boilers, which could be a good opportunity to label the boiler and familiarise households about the replacement benefits.

4. **Organizing dialogue process with public authorities empowering them to take up their role of energy transition leaders at local and regional level**

Public authorities need to plan and implement their local energy transitions with a strong focus on heating and cooling production and consumption. The focus of this activity will be to bridge the gap between the citizens their local governments and the local heating and cooling market through targeted engagement, support and a strong focus on cocreation and cooperation. The citizens need to be engaged and involved in the energy transition of their local community through the implementation of local actions. Engagement of citizens (end users) and the key stakeholders gathered in a local community, active communication and an all-encompassing approach are a fundamental aspect of the REPLACE project. These activities are already happening to some extent but mostly in the field of distributed electricity production from PV but not in the heating and cooling market. The concrete actions in the implementation phase shall be carried out on demand, according to the needs identified and the strategies and action plans developed in the public engagement process by the regional and local stakeholders 'consortia. In any case, the activities in the four pilots will show strong synergies and thematic overlap, fostering cooperation between them as well as sharing of efforts and lessons learnt. Such an engagement and involvement will naturally build capacity and trust and raise awareness regarding the current issues facing their communities and the changes that must happen. The local and regional government must support this engagement and involve the citizens in the development of strategic plans affecting them. The general public as well as all other relevant stakeholders should contribute to such decisions and cocreate plans for the local development. This process needs to happen in parallel to enable synergies between the local planning and development and ensure that the overall framework adapts to support the citizens involvement in the energy transition of the local and regional heating and cooling market.

These collective actions will be discussed during the LWG meeting to address potential issues and barriers and agree on two most feasible campaigns for implementation.

3.4.1.9 Media cooperation strategy

The objective is to communicate and disseminate all project results at local, regional, national level in order to enhance the impact achieved by the REPLACE project by supporting the use of regional renewable energy sources (such as solar, ambient heat or biomass) and equipment produced in the EU (biomass boilers, heat pumps, solar collectors) in Croatia.

The use of communication media will concentrate on reaching a wide audience, municipalities, cities from target regions, consumers, equipment manufacturers, experts and non-specialized, within Croatia.

Current Facebook and Twitter channels owned by REGEA will be used to actively address and engage an online community by posting regular updates of the status of the project. REGEA will use existing networks to inform the renewable energy community about the project like newsletters project websites and publications in professional magazines/specialist journals as well as local newspapers in target regions. A project website will represent the main access point to key information, including activities, events, publications, project news about performed webinars.

Dissemination of the project results is important in all the stages of the project as every stage brings standardized output for certain stakeholder group. Different channels in terms of national-level ministries and associations will be also used to present and discuss the results of the project.

Figure 29: News about REPLACE video on REGEA Facebook page

The following figure shows the schedule for the planned media activities in North-West Croatia, having started already in January 2021 and running until the end of the project. In North-West Croatia, strategic activities to foster the transfer to sustainable heating systems are planned in the categories media work, own media, social media, face-to-face meetings, direct communication and classical advertising.
For reasons of clarity only the categories and the months in which the activities are scheduled are shown below. The detailed overview can be found in Annex III at the end of the document.

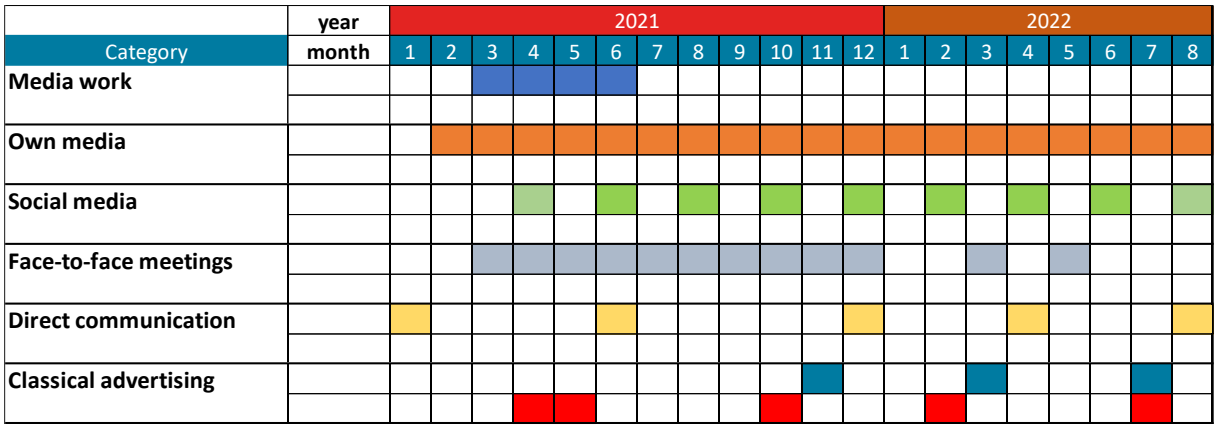


Figure 30: Simplified timeframe of media activities to support the actions in North-West Croatia

3.4.1 Primorsko-goranska county

3.4.1.1 Activity 1 - Policy driven "Energy-saving offensive" with annual labelling for boilers by installers and chimney sweepers

The importance of this action lies in solving the problem that is present in European households. A 65 % of all installed space heaters in the Europe achieves the energy label class C or D, which is quite low. The obligation regarding eco-design labeling requirements for space heaters are set by the EU Regulation 813/2013[28] and by Croatian Ordinance (OG 50/15)[29].

The replacement decisions by consumers are mainly made in the "emergency situations", i.e. when the boiler is broken. Because of the importance to solve this "emergencies" fast, there is no time for the informed decision and in the most cases the exchange is made in terms of replacing the defective part, i.e. the fuel remains the same. To overcome this problem, the proper and on-time informing of consumers is important. Although for the implementation of this action the collaboration with chimney sweepers and installers of heating systems is crucial, the service and maintenance contractors are not to be excluded. The service and maintenance contractors are the one that are conducting regular annual maintenance and servicing checks. Including all of them in this action of annual labelling of boilers, it will be possible to monitor the age and deterioration of boilers and timely decide to replace old heating source with efficient, renewable and low-carbon one.

We are planning to make engagement strategy for the chimney sweepers and installers of heating systems. In the national level there are chimney sweepers cooperatives/groups that are important for this action, Chimney sweep group at the Croatian Chamber of Commerce and Chimney Craft Cooperative. Starting from this national level we can make progress to include local level. Installers of heating systems are private companies, and several have been identified and contacted for previous

[28] Commission Regulation (EU) No 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters

[29] Ordinance on defining eco-design requirements of energy-related products (OG 50/15)

collaboration on project. After engagement of chimney sweepers, installers and service and maintenance providers, the plan is to facilitate their communication towards consumers, e.g. suggestions how to approach and what information to deliver, what services to offer, informing why labelling is important. During annual maintenance and service checks it will be determined the condition of the heating system, conducted labelling of boilers and the appropriate consultation provided to the consumers.

Table 22: Overview of the Activity 1 implementation plan

No.	Action	Timeframe	Stakeholders
1.	Meetings organization on national level - information on the REPLACE and benefits of labelling boilers	April 2021 – September 2022	Croatian Chamber of Commerce
2.	Meetings organization on regional level	June 2021 – September 2022	Local government units, LWG
3.	Labelling of boilers	July 2021 – September 2022	Chimney sweepers, installers, end-users

Figure 31: Chimney sweeper in Rijeka, capital of Primorsko-goranska county[30]

Implementation barriers:

Unfortunately, out of 36 local government units in the Primorsko-goranska county (14 cities and 22 municipalities), 11 of them currently do not have a chimney sweep service. More precisely, in eight of them, chimney concessions expired recently or in the past 2-3 years., according to the data from the Register of Concessions of the Financial Agency. This makes labelling process more challenging, but also more important. We expect to be challenged with lack of interest among the disputed

[30] www.kanal-ri.hr

government units, but hopefully this will be solved with the help of other government units, in cooperation with LWG members and their contacts as well.

3.4.1.2 Activity 2 - Every beneficiary in lead of a target region performs a minimum of six techno-economic feasibility studies

In the Primorsko-goranska county there are 85 % of RES used for heating, mainly fuel wood but there are also examples of using pellets, wood briquettes and wood chips. Regarding this action there is a requirement to analyse single object supply.

In collaboration with the key stakeholders, 6 cases will be identified in the county. Prior to conducting the techno-economic feasibility studies, all identified beneficiaries will be introduced within the REPLACE project and all information that needs to be provided.

Data collection for the analysis will be carried out by means of a questionnaire produced and supplied by the AEA. Depending on the case, data collection will be carried out in face-to face visit, online or by the phone calls. The collected data needs to be analysed by utilizing the Task 4.5 tool – REPLACE your Heating System Calculator. The results of the data analysis will be base for the techno-economic feasibility studies.

Table 23: Overview of the Activity 2 implementation plan

No.	Action	Timeframe	Stakeholders
1.	Identification of beneficiaries	June 2021	Municipalities, LWG members, end-users
2.	Data collection	August 2021	Municipalities, LWG members, end-users
2.	Conduction of six feasibility studies	August 2021 – August 2022	Municipalities, LWG members, end-users

Figure 32: Example of feasibility study carried out by EIHP

Implementation barriers:

Due to the COVID-19 pandemic, time-frame is subjected to change. If necessary, meeting will be held online, as well as data collection (online or by phone calls).

3.4.1.3 Activity 3 - Establishment of REPLACE (R)HC replacement information hubs

This action is of great importance for making progress towards more informed consumers. The implementation strategy for this action includes offering materials produced within the project, e.g. flyers, posters, rolls ups, technology briefs, handbooks, information on REPLACE offers and activities.

The hub will be located in the premises of EIHP, as well as in premises of LWG group members, such as Faculty of Economy and Business Rijeka, Regional Energy Agency Kvarner, Renewable Energy Sources of Croatia etc. The LWG group members will also operate the work of the hub. The activities of hub will be presented in the events (actions) of this task.

First REPLACE information hub takes place in RES of Croatia. The primary goal of the Association of is to encourage a general social agreement that the future of Croatia is in renewable energy sources. RES Croatia advocates new business models in the energy industry which have a huge potential for the introduction of innovations. Renewable energy sources projects offer the possibility of more qualitative financial partnerships and regional development through investments of citizens and entrepreneurs in projects by way of group financing.

Table 24: Overview of activities, timeframe and stakeholders for Activity 3 in Primorsko-goranska county

No.	Action	Time-frame	Stakeholders
1.	Preparation of the material	February 2021	LWG members
2.	Sending out the material to energy advisory offices	March 2021 – May 2021	LWG members
3.	Promotion	March 2021 – August 2022	LWG members

Figure 33: REPLACE information hub in the lobby and offices of RES of Croatia

Implementation barriers:

Due to the COVID-19 pandemic, less people will probably visit places where REPLACE information hubs are located so spreading awareness about the project will not be as large, but hopefully situation will get better by the end of the year.

3.4.1.4 Activity 4 - Informing consumers about (R)HC heating systems' replacements and related REPLACE offers and activities at large consumer fairs and festivals

Another great way of informing public on the activities of project and the replacement campaign is the attendance of the large consumer fairs and festivals, not only on a regional level but also on the national level.

The implementation will be conducted in form of application for participation in upcoming events, fairs, gatherings, etc. Informing consumers depending on the event will be performed through presentation (Power Point presentation) or/and offering information materials (flyers, technology briefs, handbooks etc.) on the stand or info desk.

EIHP is searching for relevant festivals and fairs in 2021 and 2022, related to renewable heating and cooling. LWG members are also included in the research. Most promising events located so far are:

- Energy day of Primorsko-goranska county - organized by Regional Energy Agency Kvarner, in cooperation with partners – Primorsko-goranska county and the Faculty of Economics and Business (MBA – Energy Economics). EIHP finds this as a great opportunity to "spread the word" and share information regarding the REPLACE project and benefits of RES in heating and cooling systems. However, the last event was held in December 2020 online due to the COVID-19 situation. Hopefully, by the end of this year, it will be possible to organize this event face-to-face in order to have a larger impact on end-consumers.
- Zagreb Energy week, an annual event presents a complex mosaic of a whole range of activities with the aim of including all generations and stakeholders in a long-term fight against climate change. EIHP participates in this fair every year, as an open day event in our building where different presentation are held about main activities and most interesting projects running by. We see this as a great opportunity to promote REPLACE projects and it's benefits.

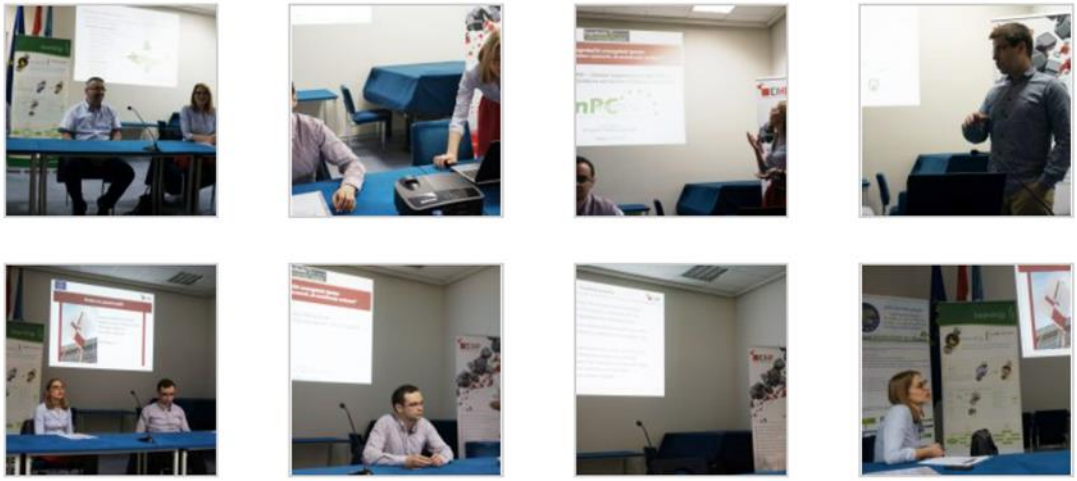


Figure 34: Example of open day in EIHP as part of Zagreb Energy week

Table 25: Overview of actions, timeframe and stakeholders for Activity 4 in Primorsko-goranska county

No.	Action	Timeframe	Stakeholders
1.	Energy day of Primorsko-goranska county	December 2021 - pending	LWG members
2.	Information points on other consumer's fairs	Unknown	LWG members

Participation on these events will be supported by photographs.

Implementation barriers:

Due to the COVID-19 pandemic and potential restrictions on large gatherings, these fairs will potentially be held online or rescheduled so it is hard to predict time-frame of the activities.

3.4.1.5 Activity 5 - Open day/house events regarding best practice RHC systems – in the target region, an open day/house event will be organized

For the implementation of this activity it is necessary to select household(s) as a good practice example(s) and make engagement strategy for the owner(s) of the household(s) in order to open the doors of their home for participants of the event. This event will be organised in the targeted region, Primorsko-goranska county. Organisation activities will be performed by EIHP. The presenter(s) of the good practice example(s) will be confirmed in due time.

On our visit to the house owners of best practice examples for Primorsko-goranska county presented in report T4.6., they expressed their interest in participation, but due to the COVID-19 situation, this activity is postponed.

For the purpose of this event, invitations with the application form will be sent to the potential participants via e-mail. The implementation of this action will be supported by photographs and signed participants list. We plan to provide a brief overview of the organized event by publishing it on the EIHP website and / or media pages. LWG members will also advertise this event on their website and / or media pages to enhance the promotion in order to increase the number of interested consumers.

Figure 35: Example of the house for the open day/house event on the island Krk

Table 26: Overview of actions, timeframe and stakeholders for Activity 5 in Primorsko-goranska county

No.	Action	Timeframe	Stakeholders
1.	Identification of the end-users who have already replaced their heating system	February 2021	LWG members
2.	Promotion	Unknown	LWG members, end users
3.	Event	Unknown	LWG members, end users

Implementation barriers:

Due to the COVID-19 situation, measures and restrictions, it is hard to expect that house owner will be willing to receive large number of unknown people in their homes, safety is always on the first place so this activity is postponed.

3.4.1.6 Activity 6 - Organization of regional field trips to best practice RHC systems for consumers/intermediaries/investors

Field trips are one of the more impactful ways to promote renewable technologies since they show their specific and direct impacts. Furthermore, they are a good way of connecting consumers and installers, which is something we hope to achieve.

For the purpose of these events, examples of good practice will be selected. The organization of field trips will be performed by EIHP. Invitations and application forms will be sent to the potential participants. For all registered participants, a bus transportation shall be organized. Depending on the duration of the field trip, it is necessary to provide participants with water and a meal.

Presenter of good practice example, field trip guide will be confirmed in due time. The implementation of this action will be supported by photographs and signed participants list. We plan to provide a brief overview of the organized event by publishing it on the EIHP website and / or media pages.

Figure 36: Example of the regional field trip organized by EIHP within another project

Table 27: Overview of actions, timeframe and stakeholders for Activity 6 in Primorsko-goranska county

No.	Action	Timeframe	Stakeholders
1.	Identification of best practice examples	February2021	LWG members
2.	Organization of the field trips	July 2021 – September 2022	LWG members, end consumers, installers

Implementation barriers:

Due to the COVID-19 pandemic, it is possible that the field trips will not be able to take place on location in the coming period. In that case, the option of organizing a virtual tour will be considered.

3.4.1.7 Activity 7 - Supporting installers and/or energy utilities/service companies to become plant (+ energy efficiency) contractors

This action includes realisation of a show-case for the installers and or energy utilities/service companies. In this way, installers / energy utilities /service companies will be encouraged to expand their business. Some of them already have a basis for growth and only require further information and advice on how to achieve that.

Implementation of this event can be organised as one day event where showcase can be presented to the targeted groups. It would be useful for the participants to have good practice examples presented and engaged in a sort of a workshop. The workshop can be organised as an event in Primorsko-goranska county.

For the purpose of this event it is necessary to send invitations with application forms and support event by photographs and/or signed participants list. We plan to provide a brief overview of the organized event by publishing it on the EIHP website and / or media pages.

Table 28: Overview of actions, timeframe and stakeholders for Activity 7 in Primorsko-goranska county

No.	Action	Timeframe	Stakeholders
1.	Identification of installers/energy utilities /service companies	February 2021-April 2021	LWG members
2.	Event – workshop for installers / energy utilities / service companies	May 2021 – October 2021	Installers, energy utilities, service companies

Implementation barriers:

Because of the situation caused by COVID-19 pandemic, it is not clear whether the proposed workshop will be able to take place in person or via an online platform. If the latter occurs, the workshop will probably take the form of a webinar.

3.4.1.8 Activity 8 - Facilitating the realization of collective actions

The purpose of this action is to educate smaller groups so that they know which actions to take when building a local heating network, which can be effectively achieved by their combined effort. Moreover, they will be able to promote the sustainable actions they are taking and contribute to better overall acceptance and understanding of the benefits of renewable energy technologies.

This action also includes a realisation of showcase. There are several activities that can be facilitated, and it is yet to be determined what kind of action would be most viable for the Primorsko-goranska county. We are expecting to determine most needed activities in the information hub and by suggestions of LWG.

The action will be implemented by means of providing support, guidelines, advices to the beneficiaries.

Table 29: Overview of actions, timeframe and stakeholders for Activity 8 in Primorsko-goranska county

No.	Action	Timeframe	Stakeholders
1.	Event – education of beneficiaries	October 2021-December 2021	LWG members, beneficiaries
2.	Follow-up consultations	January 2022-February 2022	LWG members, end users
3.	Showcase	March 2022-May 2022	LWG members, end users

Implementation barriers:

Due to COVID-19 pandemic, there is a possibility that above-mentioned activities will not be able to be held in person. This can be solved by organizing such events via an online platform.

3.4.1.9 Media cooperation strategy

Activities realised within project will be supported by publishing news on the EIHP's website, media and social media pages. In cooperation with Faculty of Economics and Business, University of Rijeka, where LWG meetings are held, media portals will be informed on the upcoming events and will announce all news on their portal.

So far, the first and second LWG meeting was accompanied by a media publication: publication on LinkedIN page of EIHP, webpage of EIHP and media portal Novi List. There was also a project announcement on EIHP's web, as well as report on kick-off meeting and this applies to all future meetings and events.

Figure 37: Example of media coverage by EIHP

The use of communication media will reach a wide audience within the Primorsko-goranska county, and wider in Croatia. Main goal of this activity is to inform cities and municipalities from target region, end-consumers, chimney sweepers, equipment manufacturers, and experts in these topics on all activities regarding the project execution and to encouraged to participate, especially within the activities 3, 4, 5 and 6.
It is very important to raise awareness and receive feedback form the target groups, in order to achieve a fluid communication and exchange of information regarding the replacement campaigns.

The following figure shows the schedule for the planned media activities in Primorsko-goranska county, starting in March 2021 and running until the June 2022.
For reasons of clarity only the categories and the months in which the activities are scheduled are shown below. The detailed table can be found in Annex IV at the end of the document.

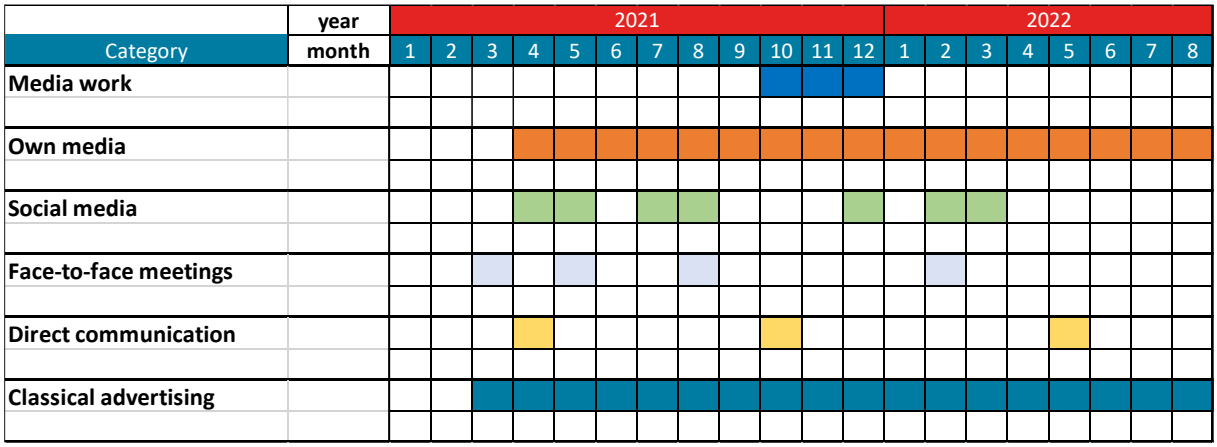


Figure 38: Simplified timeframe of media activities to support the actions in Primorsko-goranska county

3.5 Germany

3.5.1 Activity 1 - Policy driven "Energy-saving campaign" with annual labelling for boilers

In Germany, a regular, official labelling of boilers is done every other year by the chimney sweepers. An information map is handed over at the occasion. Nevertheless, people tend to overlook the efficiency label at the heating systems, even if they show classes C, D or E.

Energiewende Oberland wants to make use of the official label at the heating systems by doing a call for attention. The call for attention will be realized through a press event together with a chimney sweep. At the event the chimney sweep explains about the awarded label and the meaning behind it. Energiewende Oberland invites end consumers to take a look at their heatings' efficiency label and advertises that EWO is available to inform end consumers about a heating exchange, energy saving and efficiency measures. Another channel for the call for action could be the climate protection movement Fridays for Future, where Energiewende Oberland asks the students to take a look at their parents' heating systems, and in case the efficiency label is a C, D or E advertises the REPLACE offers at the dedicated website waermewende-oberland.de with replacement tools, information on the topic and on funding. Further channels for the call for attention are the EWO website, EWO newsletter, the district climate protection managers, the chimney sweep guild, the dedicated waermewende-oberland.de website, posters and advertisements, and social media.

The press event and resulting news is planned for September 2021. The call for action will be available on the various channels, s.o., from September 2021 until August 2022.

Figure 39: Example of an old boiler in the region

3.5.2 Activity 2 - Six techno-economic feasibility studies

The REPLACE calculator is an efficient means for end consumers, intermediaries and investors to calculate planned replacement action beforehand and, with data from the regional situation, find out about the CO2 and economic dimension of the envisaged systems.

In a first and crucial step, the calculator shall be made known in the Bavarian Oberland via the stakeholders. Planned are placements on the dedicated website waermewende-oberland.de, information to guilds, heating engineers, chimney sweeps, advertising via press, EWO-homepage, social media, online banner advertising and a video presentation. At the same time, the possibility to take part in a free of cost feasibility study will be made public. The studies consist of a questionnaire for data collection provided by AEA, a personal visit or webinar and phone calls, and the result will be available in a standardized report and a summary. After the studies have been conducted, an article will be published about the action, its results and the REPLACE project, actions and tools via press, EWO website, social media and waermewende-oberland.de .

Advertising of the calculator and the feasibility studies is planned from June 2021 until August 2022. An article on the results is planned for April 2022.

Figure 40: Image for the heating system calculator

3.5.3 Activity 3 – 100 % renewable heating or cooling labelling campaign

The 100 % renewable heating labelling campaign, where end consumers receive a labelling if their heating systems functions 100 % with renewable energies, is an effective method to show how many people have switched to climate friendly systems, thereby triggering neighbours from the region to follow their example.

The labelling campaign is planned as a public event, possibly in combination with e.g. a city festival, where Energiewende Oberland invites all end consumers from the region who already have realised 100 % renewable heating. At the event, a public photo with many people holding up their 100 %-signs will be taken, and information about REPLACE and waermewende-oberland.de to all people interested in a heating exchange will be given. The call for the label- and photo-action will be spread via press, the districts' climate protection managers, the EWO-website, social media, waermewende-oberland.de, and the press will be invited. A report and the photo of the action together with information for those interested in a heating exchange will be disseminated via the press, the EWO website, waermewende-oberland.de, social media, the districts' climate protection managers, and the guilds.

The photo event is planned for May or June 2022. Invitations and dissemination of the news are planned accordingly.

Figure 41: Candidate houses for the 100 % labelling

3.5.4 Activity 4 - Best practice RHC systems open day/house events

As the REPLACE interviews in the Oberland region have shown, end consumers can be sceptical before switching to a new, climate friendly heating system, but tend to be satisfied afterwards. In

order to give end consumers the possibility to view modern systems first hand and ask questions, open house days are an excellent opportunity.

In order to find out about people in the region who already have got renewable heating systems, Energiewende Oberland cooperates with energy and climate protection managers. The aim is to show the various possibilities of renewable systems from pellets over fuel cells, wood chips, local heating, PV and heat pumps as well as solar thermal systems. In addition, it is envisaged to have energy consultants at the open house days who are able to answer consumers' questions. The events will be advertised via the EWO website, waermewende-oberland.de, the EWO newsletter, social media, the districts' climate protection managers, and the press. Resulting articles on the open house days and REPLACE offers will be published via press, waermewende-oberland.de, the EWO website, the EWO newsletter, and the climate protection managers.

The open house days are planned for the heating season from autumn 2021 until March 2022. Dissemination activities are planned accordingly.

3.5.5 Activity 5 - Regional field trips to best practice RHC systems

In the Oberland region there are many best practice examples on private and municipal level. Due to long-term relationships and previous projects related to the heating sector, Energiewende Oberland can rely on a network of at least 12 examples where interested parties can take a look and get first hand information from successfully operating climate friendly systems.

Involved stakeholders will be local heating network operators, energy suppliers and energy commissioners. The invitation to excursions for consumers, intermediaries and investors will be implemented in cooperation with the climate protection and energy officers of the municipalities. Invitation will be sent via press, in cooperation with the climate protection officers, the EWO website, social media, the EWO newsletter, and a press invitation. Articles on the excursions will be published via the press, waermewende-oberland.de, energiewende-oberland.de, social media, and the EWO newsletter.

Excursions to best practice examples are planned in the heating season between November 2021 and March 2022.

Figure 42: Visit of a best practice example

3.5.6 Activity 6 - Show case - mobile heating containers facilitation

Mobile heating containers are a valuable possibility to avoid 1:1 exchanges when heating systems fail or are about to fail. With their help, end consumers but also operators of larger heating systems like municipalities gain time to gather information for a switch-over to renewable and climate friendly solution.

As the local working group has confirmed, mobile heating containers are a valuable option for renewable heating replacements, but there seems to be a shortage of offers in the region. Energiewende Oberland plans to research solutions in the Oberland among heating contractors and companies that provide and use mobile solutions, and to publish a call via press, municipalities, the EWO website and social media to stakeholders who would like to offer their containers. The research and call will result in a list of suppliers. An article shall then inform about the sense of mobile heating containers, the show case, and offers in the Oberland and will be published via the press, the EWO website, the district administrations' homepage, the EWO newsletter, social media, waermewende-oberland.de, and the districts' climate protection managers.

The research for mobile solutions shall start in March 2021, the call for people who would like to offer their containers is planned for May 2021, the compilation of the list shall be published in September 2021, and the show case towards spring 2022.

Figure 43: Example picture for heating containers

3.5.7 Activity 7 - Supporting installers and/or energy utilities/service companies to become plant contractors

In case a municipality does not have its own municipal utilities, but a local heating engineer would like to take care of a local heat network, or if a municipality would like to commission the heating of its municipal buildings not to a large energy supplier, but to a local one, the model of plant contractor is a favourable way to advance with the heat transition towards climate friendly heating.

Energiewende Oberland wants to invite interested parties to an information event. The event will be coordinated together with the regional guilds. At the event itself, Energiewende Oberland and stakeholders from the guilds and heating engineers will inform e.g. about the procedure and the economic construct, and questions can be answered. Following the information event, interested parties can get further information and consultation from Energiewende Oberland on the topic. The event shall possibly take place as a physical meeting. A recording of the lecture shall afterwards be available online. The information event shall be advertised via waermewende-oberland.de, the EWO website, the EWO newsletter, and the press. News on the event, and later on a show-case shall be disseminated via a press release, the EWO website, waermewende-oberland.de, and social media.

The information event is planned for July 2021. Interested parties can get a follow-up consultation on the topic from July 2021 until August 2022 and further on.

3.5.8 Activity 8 - Show-case - realisation of collective actions

In the Oberland, there is still a great need to increase the share of renewable energies in the heating sector. But not everyone has to build their own heating system. A great option is to join forces in the village and organize a village heating system together.

At an information event, Energiewende Oberland provides interested parties with useful tips e.g. on how to organize a local heat network, who to contact with questions, what to look out for, and funding options. Stakeholders who are envisaged as active partners in the event or as guests are communities, local councils, private individuals, heating engineers, chimney sweeps, forest owner organisations, and the funding agency (BAFA). Following the event, Energiewende Oberland will further advise those who are interested in the implementation of a local heat network. The information event will be advertised via the press, the EWO website, waermewende-oberland.de, the districts' climate protection managers, and the press will be invited. Afterwards a press release, and later on a show case will be publish via waermewende-oberland.de, energiewende-oberland.de, social media, the EWO Newsletter, and will be disseminated to the local press.

The information event is planned for September 2021. Follow-up consultations for interested parties are offered by EWO from September 2021 until August 2022 and further on. A show case will be published towards spring/summer 2022.

Figure 44: Common action of EWO together with local stakeholders

3.5.9 Media cooperation strategy

The following figure shows the schedule for the planned media activities in the Oberland, starting in March 2021 and running until the end of the project. In Bavarian Oberland, strategic activities to foster the transfer to sustainable heating systems are planned in the categories media work, personal contacts, own media, social media and classical advertising.

For reasons of clarity, only the categories and the months in which the activities are scheduled are shown below. The detailed overview can be found in Annex V at the end of the document.

	year	2021												2022							
Category	month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
Media work																					
Personal contacts																					
Own media																					
Social media																					
Classical advertising																					

Figure 45: Simplified timeframe of media activities to support the actions in the Bavarian Oberland

Altogether, more than 50 different activities are planned for the Oberland.

3.6 North Macedonia

3.6.1 Activity 1 - Policy driven "Energy-saving campaign" with annual labelling for boilers

The energy-saving campaign will be initiated in the KAGoP region with the support of the local working group (LWG), the energy controller with an onsite assistance and the chimney sweepers and installers. The main objective of the campaign will be to label existing boilers in households, with an emphasis on the positive effect of the boiler replacement. The first step will be identification of installer and chimney sweeper thought the contacts of the LWG. If possible, energy controllers might be part of the labelling, as professional who will explain the benefits of boiler replacements, thus they will have the role of the promotion of best practices. Before starting the campaigns, a meeting with the respective stakeholders will be organised in order to explain the role of each participant in the process. Moreover, the meeting will be in a form of a training where labels and folders can be distributed to those who will carry out this activity. The season of boiler maintenance is at the beginning of the heating season which could be a good opportunity to label the boilers, as the installers are inspecting and servicing boilers in the same time. During the next LWG meeting this campaign activity will be discussed to address potential issues and barriers in implementation due to COVID-19 situation.

During the implementation time, we will inform end-user through a promotion on website of the LWG. Also, the members of the LWG could share the activity concept with their collaborators and to get in touch with interested consumers who will be able to contact us and get their boilers labelled.

An overview of the planned activities of the campaign, stakeholders and the time-frame can be found in the table below.

Table 30. Overview of the activions, timeframe and stakeholders for Activity 1

No.	Action	Timeframe	Stakeholders
1.	Chimney sweepers and installers identification	January 2021	Chimney sweepers, installers, LWG
2.	Meetings organization Information on labelling benefits	February 2021 – September 2022	Chimney sweepers, installers, LWG, end-users
3.	Labelling of boilers	May 2021 – September 2022	Chimney sweepers, installers, energy controllers, end-users

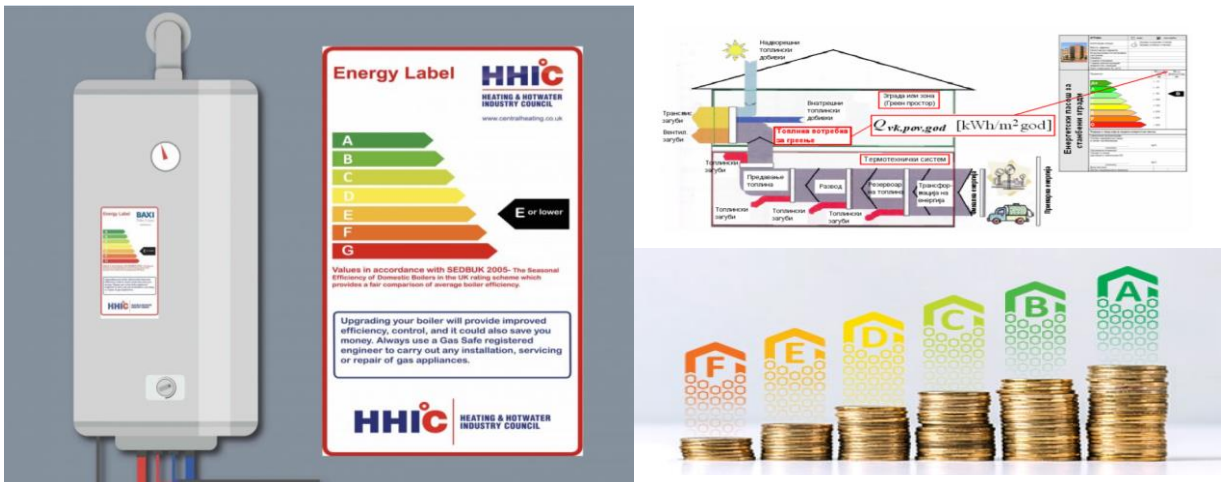


Figure 46.Annual labelling of boilers with the financial benefits[31,32]

3.6.2 Activity 2 - Six techno-economic feasibility studies

KAGoP region has already been part of several techno-economy studies. Based on the questionnaire prepared and distributed by the AEA and Hexit tool, six techno-economic feasibility studies will be realised for the end-users interested in replacing their old boilers with new. The activity will be implemented with the support of municipalities representatives in previously determined locations based on the end-users who are planning to replace their heating system will be identified. Even though a webinar is planned, SDEWES-Skopje will organise additional meeting on local level in order to define the cases and the most relevant replacements. Input data required for the feasibility assessment in a family home or apartment will be collected from the with interested parties, most likely with online exchange of data or phone calls. Projects realized during campaigns life may become show cases, upon agreement of the building owners.

The feasibility studies if possible, will be shared among the end-users and promoted on the website of the LWG. With that in mind the municipalities might attract more investors on local level by showing real examples.

An overview of the planned activities of the campaign, stakeholders and the time-frame can be found in the table below.

[31] https://www.phamnews.co.uk/new-energy-labelling-scheme-for-old-boilers/

[32] https://tesy.com/products/electric-water-heaters/energy-efficiency-of-electric-water-heaters-erp

Table 31. Overview of actions, timeframe and stakeholders for Activity 2

No.	Action	Timeframe	Stakeholders
1.	Meeting organization with the municipalities' representatives Beneficiaries identification	January 2021	Municipalities' representatives, LWG members, end-users
2.	Informing beneficiaries about the Project	February 2021	Municipalities, end-users
3.	Conduction of six feasibility studies	March 2021 – August 2022	Energy experts, municipalities, LWG members, end-users

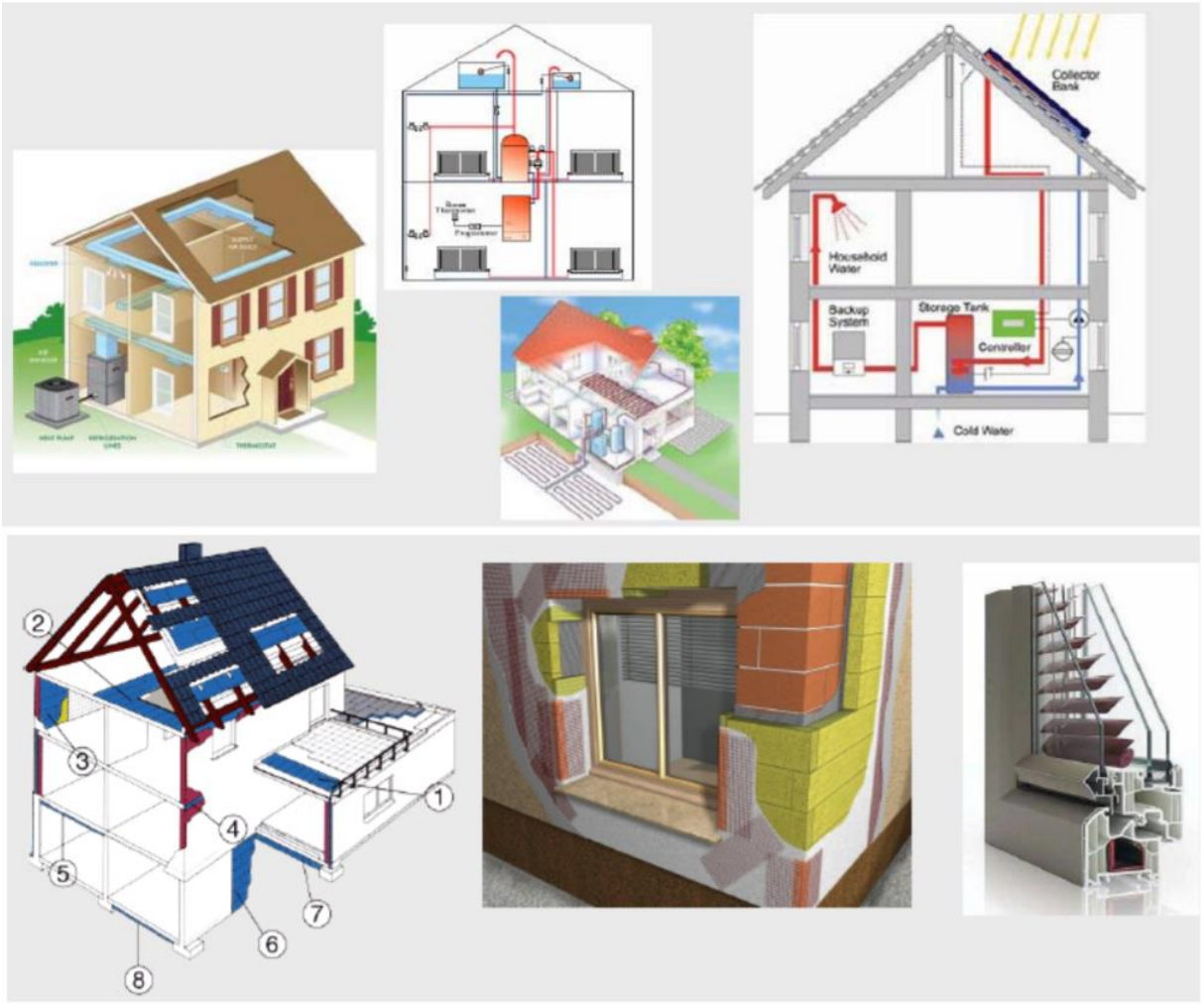


Figure 47. Preparation of techno-economic feasibility study[33]

[33] http://www.energetskaefikasnost.org.mk/prezentacii/risto_filkoski/EE_Buildings-RVF-01-Energetski-bilans-opsto.pdf

3.6.3 Activity 3 - REPLACE (R)HC replacement information hubs

The REPLACE information Hub will be operated by the three municipalities from the KAGoP region, namely municipality of Karposh, Aerodrom and Gjorche Petrov. Each of the municipalities will ensure a dedicated space to set up project flyers, posters, rolls ups, technology briefs, handbooks, information on REPLACE offers and activities which will be open to the interested citizens. Furthermore, an employee in the municipality who is involved with the renewable heating and cooling or a member from the LWG will be trained to elaborate the idea behind the information hub to the end users or relevant stakeholders. Anyhow the other members of the LWG might include such hubs in their organization if possible.

Municipality of Karposh already have a separate corner on their official website dedicated to REPLACE project which can be used as an online information hub regarding the ongoing activities.

An overview of the planned activities of the Action, stakeholders and the time-frame can be found in the table below.

Table 32. Overview of the actions, timeframe and stakeholders for Activity 3

No.	Action	Timeframe	Stakeholders
1.	Meeting organization with the municipalities' representatives	January 2021	Municipalities, members of the LWG, end-users
2.	Establishment of the information hubs	February 2021 – September 2022	End-users

Figure 48. Information hub[34]

[34] http://dry-f.eu/News-Events/Events/ArtMID/446/ArticleID/28/DryFiciency-at-EUSEW2018

3.6.4 Activity 4 - Labelling-campaign for 100 % renewable heating or cooling

The city of Skopje and the municipalities themselves had several campaigns for “Subsidizing the replacement of inefficient heating systems in households with renewable". Therefore, the households that have replaced the old systems could be easily identified and receive 100 % renewable heating label. Moreover, the municipalities have their inventory of facilities that use RES which will ease the process of labelling. For this particular task the representative of the municipalities will pays significant role in the identification of renewable systems. The other LWG member will reach out to possible contacts with end users that made the transition to renewable energy technologies.

An overview of the planned activities of the campaign, stakeholders and the time-frame can be found in the table below.

Table 33. Overview of actions, timeframe and stakeholders for Activity 4

No.	Action	Timeframe	Stakeholders
1.	100 % renewable heating or cooling households labelling	March 2021 – September 2022	Municipalities, LWG members, end-users

Figure 49. Labelling campaigns for renewable systems[35],[36],[37]

3.6.5 Activity 5 - Best practice RHC systems open day/house events

Open day or house events regarding best practice RHC systems in the KAGoP region will be organised. On that day, interested consumers can visit households which have already switched their

[35] https://mia.mk/nov-ekoloshki-sistem-za-gree-e-i-lade-e-vo-gradinkata-prolet-vo-vlae/
[36] http://www.label-pack-a-plus.eu
[37] https://zivotnasredina.skopje.gov.mk/subventsii/

heating system as well as installers and renewable energy companies. SDEWES-Skopje with the members of the local working group will identify and contact potential show cases. In these municipalities there are many good practices of end users that made a transition towards a renewable solution for heating.

The event will be advertised on the websites of the LWG member to enhance the promotion. Such promotion might increase the number of interested consumers who will be able to visit households which have already switched their heating systems; thus it might encourage them the replicate the good practice in their house as well. After the identification of the most relevant show case the organisation part follows. However, SDEWES-Skopje together with the host and the representative from the respective municipality will be in charge for setting date and gathering as many as interested end users as possible.

An overview of the planned activities of the campaign, stakeholders and the time-frame can be found in the table below.

Table 34. Overview of actions, timeframe and stakeholders for Activity 5

No.	Action	Timeframe	Stakeholders
1.	Identification of the end-users who have already replaced their heating system	January 2021	LWG members, installers, end-users
2.	Promotion of the open day/house events	February 2021 – August 2021	LWG members
3.	Organization of the event	April 2021 – September 2021	LWG members, end-users

Figure 50. Open days - show case of heat pump heating system in the municipality of Karposh[38]

[38] http://energija.com.mk/wp-content/uploads/2014/11/Case-Study-Toshiba-Estia_Final.pdf

3.6.6 Activity 6 - Two to three webinars on the usage of the "REPLACE your Heating System Calculator" and the "Online technology briefs with info-graphics"

Webinars offer great potential of reaching out to multiple stakeholders in an interactive and engaging manner. For this reason, three webinars will be organized for different types of target groups. The first webinar, targeting municipality representatives, policy makers and industry representatives, will serve as an opportunity to present the "REPLACE you Heating System Calculator". The calculator will be described through the analysis of a case study that represents the local conditions of typical end-users in North Macedonia. Thus, the webinar should equip municipality representatives and policy makers with a knowledge of a simple, yet practical tool that can be used to assess the impact of different replacement support schemes.

The second webinar, organized in April, aims to present the "REPLACE you Heating System Calculator" to end-users. A poll, organized before the webinar, is used to obtain information on the types of examples that the webinar attendees are most interested in. The presentation of the tool is during the second webinar is based on this input, with a strong focus of practical use of the tool. Through an interactive discussion, the webinar should offer the attendees a hands-on experience of using the tool.

The third webinar, organized in May 2021, targets multiple stakeholders. In this webinar, the Online technology briefs with infographics are presented. It is structured in two parts – the first part of the webinar is spent on covering the "Online technology briefs with infographics", while the second part of the webinar will a presentation of a best practice example of a collective action. Polling and online instantaneous survey are used to gather feedback from participants. The gather information will be used to assess the impact of the webinars and the interest of different stakeholders.

An overview of the planned activities of the campaign, stakeholders and the time-frame can be found in the table below.

Table 35. Overview of actions, timeframe and stakeholders for Activity 6

No.	Action	Timeframe	Stakeholders
1.	First webinar for the use of "REPLACE you Heating System Calculator"	March 2021	Municipality representatives, policy makers, industry
2.	Second webinar for the use of "REPLACE you Heating System Calculator"	April 2021	End-users, industry, energy experts
3.	Third webinar on the "Online technology briefs with infographics" and possibilities of shared PV systems in multi-apartment buildings	May 2021	Municipality representatives, policy makers, end-users, industry

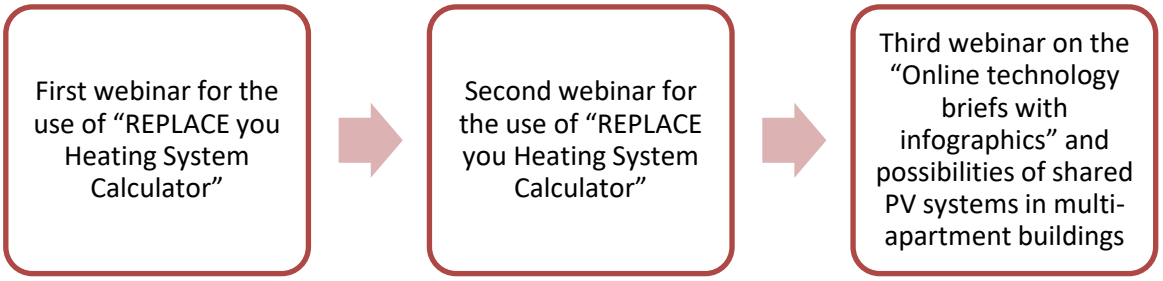


Figure 51. Workflow of the webinar activities

3.6.7 Activity 7 - Supporting installers and/or energy utilities/service companies to become plant (+ energy efficiency) contractors

Installers, energy utilities and service companies need to adapt to the changing legislative and technology framework in order to grow their businesses. There is significant potential for companies to broaden their business models to becoming plant and energy efficiency contractors. For the KAGoP region, an event will be help for representatives of energy utilities/service companies and other installers.

A presentation will be given on the possibilities of adopting ESCO models within the national legislation. This presentation should contribute to the capacity building of stakeholders in terms of ability to broaden their business models. National and international best practice examples will be provided. Furthermore, a discussion will be initiated with the aim of identifying the area with biggest business potential for this approach. Given the Covid-19 pandemic, the event may be organized as an online event in case physical meetings are not permitted.

Table 36. Overview of the actions, timeframe and stakeholders for Activity 7

No.	Action	Timeframe	Stakeholders
1.	Identifying best practice examples, research of the national framework conditions	June 2021	SDEWES-Skopje
2.	Event for supporting installers and/or energy utilities/services to become plant (+energy efficiency) contractors	July2021	Installers, energy utilities, service companies, municipalities

3.6.8 Activity 8 - Show-case – realisation of collective actions

Due to a lack of funding opportunity, initiator base and energy literacy, collective actions ad community projects are not a common practice in North Macedonia. However, a number of best practices related to local collective actions, especially in the KAGoP region, have been highlighted within the REPLACE project.

Within this action, dedicated event will be organized so as to inform and empower end-consumers, by show-casing and presenting past best practice examples. Initially, a LWG meeting will be held in order to identify the best practices and the manner in which they should be show-cased. Within D2.3, three collective actions were highlighted in the KAGoP region – summer pellet cost reductions, collective insulation and asbestos roof change. To disseminate the information on these three collective actions to different stakeholders, short description and guidelines with visual representation of the collective actions will be prepared. These descriptions will be uploaded to the municipalities websites, but will also be disseminated by the members of the LWG and SDEWES-Skopje. Moreover, the possibility of collective PV systems for multi-apartment buildings will be presented, based on a realistic measurement of the electricity consumption in a multi-apartment building with a simulated PV generation.

Table 37. Overview of activities, timeframe and stakeholders in Action 8

No.	Action	Timeframe	Stakeholders
1.	Identifying the best practice examples	January 2021	Municipality representatives, LWG
2.	Preparation of articles and graphics for online publication	February – March 2021	SDEWES-Skopje, municipality representatives, LWG
3.	Third webinar on the "Online technology briefs with infographics" and possibilities of shared PV systems in multi-apartment buildings	May 2021	Municipality representatives, policy makers, end-users, industry

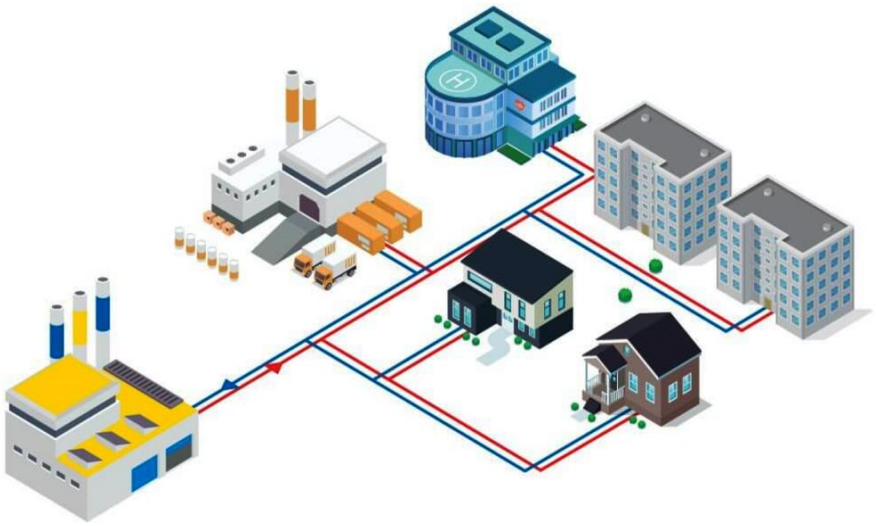


Figure 52. An illustration of a collective district energy system[39]

3.6.9 Media cooperation strategy

What do we want to achieve with whom until when and to what extent?

Over the last few years, the framework conditions for supporting the replacement of old and inefficient heating with renewable and sustainable solutions has been continuously improving. End consumers can now utilise different replacement campaigns and subsidy schemes, especially in the City of Skopje. These campaigns target the replacement of old and polluting heating systems with new pellet stoves or heat pumps. To cover the high investment costs, there are many bank loans or direct grants that are specifically tailored for this purpose. Yet, it is often the case that this information fails to reach end consumers. Even when it does reach them, they may have many questions that are left unanswered which leads to a lack of action and reduces the effectiveness of the replacement campaigns. These questions can be related to the choice of the optimal heating and cooling technology, required investment cost or expected payback period.

[39] https://www.solarthermalworld.org/news/support-renewable-district-heating-slovenia

Therefore, our intention is to raise the awareness of end consumers by informing them about existing campaigns so that they can realize the benefits of the replacement and take action. The target groups involved will be of different backgrounds, meaning that various stakeholders will participate in the campaigns, such as: consumers, intermediaries, plant contractors, energy utilities/service companies, investors, equipment manufacturers, municipal authorities, etc. The duration for completion of the campaigns is almost two years, starting from February 2021 up until August 2022. The campaigns will have regional impact to the extent of KAGoP region, with a possibility for replication in other municipalities.

There are four general steps that need to be completed for the development for each of the campaigns.

- Step 1: Plan and organise
- Step 2: Promote onsite and online
- Step 3: Go live
- Step 4: Operate and track the progress

PR-analysis:

The success of the campaigns depends on the stakeholder's interest and their points of view. The estimations for the multiple target groups (consumers, renewable energy companies, energy utilities/service companies, plant contractors, investors) are positive, meaning that they would be open for new collaborators and interested to contribute in the planned activities. There are some uncertainties with the intermediaries who are usually overloaded with work, and might not be as focused in the activities as the LWG members would expect.

To run the campaigns, beside the involvement of the members of LWG, possible partners will be the representatives from the municipalities and the City of Skopje, as well as different NGOs from the region.

The REPLACE campaign actions in the KaGOP region are:

- "Energy-saving offensive" with annual labelling for boilers by installers and chimney sweepers
- Six techno-economic feasibility studies (regarding single object supply) for free for end consumers
- Establishment of REPLACE (R)HC replacement information hubs
- Labelling-campaign for 100% renewable heating and cooling
- Open day/house events regarding best practice RHC systems
- Performing two to three Webinars on the usage of the consumer-friendly "REPLACE your Heating System Calculator" (T.4.5) and the "Online technology briefs with info-graphics" (T.4.2) to consumers in the region and beyond, advertised in (local) media that are popular with consumers
- Facilitating the realisation of innovative collaboration models between installers and plant (+ energy efficiency) contractors
- Facilitating the realisation of collective actions

Throughout these actions, the following topics will be covered:

- REPLACE you Heating System Calculator
- Online technology briefs with infographics
- Presentation of a best practice example of a collective action (possibilities of shared PV systems in multi-apartment buildings)

- Presentation on the possibilities of adopting ESCO models within the national legislation
- Surveys
- Heating Matrices
- Best practices relevant for KAGoP region
- Decarbonation of the heating sector

One of the crucial aspects is to conduct a SWOT analysis on the strengths, weakness of the organization and moreover to assess the external opportunities and risks.

Strengths	**Weaknesses**
○ Strong inter-institutional collaboration in the region	○ Promotion on various social media
○ Content-related competence and expertise in RHC	○ Energy poverty
○ Support from academia	
○ Momentum of existing new national subsidy schemes	
Opportunities	**Risks**
○ Contribution to reduce CO_2 emissions and to improve the air quality with the replacement campaigns in place	○ Inability to conduct events due to COVID-19
○ Climate protection and sustainability	○ Lack of interest
○ Financial and energy benefits in case of replacement with renewable energy source heating systems	○ COVID-19 pandemic and effects on economy/personal income of target groups
○ Use of subsidies for RHC systems	○ Affordability and finance-ability of climate-friendly heating systems with higher up-front investment
○ Availability of subsidies	○ Rebound effect

Strategic orientation

- **Analysis results: environment and potential target groups**

The most important target group that can contribute for media enhancement are the consumers and intermediaries. Indeed, these categories are the first in line for Word-of-Mouth Marketing. The municipal representatives have foremost role on higher level and represent an interconnection for the end consumers and investors/energy companies. Furthermore, the energy utilities or service companies can significantly promote the campaigns as the objectives of these activities are within their scope of work. The benefit would be two-sided, as the end consumers might find suitable contractor in case, they decide on heating system replacement.

Having the mind, the current COVID-19 situation as a limiting factor the creative ideas would refer to virtual promotion of some good practises. For instance, for the webinars, a presentation on the possibilities of adopting ESCO models within the national legislation (as a model that is gaining national interest) is envisioned. Moreover, right before the start of the campaigns, a video will be released in which the REPLACE project will be promoted. Another idea that might be part of particular campaign is dissemination of flyers in each building and house, as a door-to-door advertising. However, the realization of the ideas depends of many factors, such as the environment, the interest of end consumers, the availability of onsite staff etc. Also, for the (R)HC Information

hubs, in order to track the progress, a Key Performance Indicators (number of visits in the physical information hubs, number of emails, number of direct phone calls, etc.) will be set.

In order to better promote the campaigns and all the envisioned activities the channels and information distributors should be a priority. SDEWES-Skopje has a far-reaching list of contacts from previous projects or events that will show interest for some of the actions. Then the LWG network and their social medias come in hand to disperse the ongoing activities. The extended stakeholders list will be a messenger as well to engage more participants.

- **Most important benefits from campaigns for target groups**

The campaigns produce ways for various target groups to get familiar with the renewable energy systems at different occasions. After the open days the stakeholders will be aware of RHC systems in practice and the benefits of the replacements with environmentally friendly alternatives. The series of webinars and other gatherings create on opportunity for the target group to acquire knowledge for the perks of renewable heating and cooling. The reduced energy bills, CO_2 emissions and lower energy needs are some of the advantages of the RHC systems. With that in mind the consumers that will replace their heating systems are contributing for decreased air pollution and better environment, thus they are improving their living conditions and comfort. The campaigns are exceptional occasion for the experts to exchange experience, to promote themselves, to attract customers.

Furthermore, these tailored campaigns differ from other activities as they are adapted to the region needs. For example, on the Open day the participants could get information at first-hand about similar to their desired replacement. The best practises will be shown on the Labelling campaigns, and those examples should serve as a stimulus for end consumers to replace their inefficient systems. With this regards the end user could asses the cost-effectiveness of particular heating system or to get an indication whether that system is reasonable and will fit their budget and requirements. The Information Hubs will provide independent, technology neutral advices for end consumers with an onsite assistance from trained municipal representatives. Those hubs will be enriched with free of cost feasibility studies conducted with a regionally adapted tool. The studies will refer to a specific case in the region, which is really customized campaign. Nonetheless dedicated webinars for broader public will be organised in which the REPLACE your heating system calculator and various technology briefs will be presented. The experts will discuss about the urgent need of decarbonising of the heating sector and the phase out of coal.

- **Simple core messages**

Key messages that fit the target groups in the KAGoP region:

Key messages for end consumers:

- Half of Europe's energy consumption is used for heating or cooling. 80 million out of 120 million installed systems are inefficient. A great opportunity for you not to be one of them.
- To reach Europe’s climate targets and to make Europe independent of oil, coal and natural gas, a change in the heating and cooling sector is essential. That change could start with you.
- Environmentally-friendly heating and cooling systems come with additional benefits, such as cost savings, improvements in air-quality, user-comfort, operational reliability, and security of energy supply due to using locally available, more price-stable energy from renewable energy sources.
- The replacement of heating and cooling appliances can also increase the value of the property, since it is supplied with an inexhaustible, sustainable energy source.

- The REPLACE Heating Matrices will provide an initial overview of the different alternatives when replacing your existing heating or cooling system.

Key messages for policy makers:

- Renewable heating and cooling make a valuable contribution to mitigate climate change and to sustain both, the economic strength of your region and a secure energy supply. And all that with energy from the region: whether solar energy, biomass or ambient heat made available with electricity from water, wind and sun via a heat pump or being it a connection to district heat.
- KAGoP region is one of nine regions whose citizens, through an international collaboration, will be motivated to make informed decisions for the replacement of their old heating systems with more environmentally friendly alternatives.
- KAGoP region will be enriched with best practices and innovative approaches in close cooperation with specific target groups. They show how replacements can be implemented under real local conditions, being technically and economically viable at the same time. Best practice examples cover easy and quickly off-paying residential building refurbishment measures, heating and cooling system replacements, demand-response and collective actions, innovative approaches like utilising mobile heating units or the dissemination of innovative multifunctional façade systems.
- To develop efficient campaigns, REPLACE identifies requirements for implementation actions concerning infrastructure, regulations and law, investigates stakeholders' mind-sets and their needs, refers to lessons learnt from previous projects, addresses the main barriers and challenges stakeholders are facing and develops accordingly designed action plans, tailor-made for KAGoP region.

Key messages for wider stakeholder group:

- The REPLACE project for the first time brings together installers, heating system manufacturers, chimney sweepers, politicians and other key players at one table, regionally. In this way, the best measures will be shared and jointly developed locally to replace old and inefficient heating systems with environmentally friendly alternatives.
- A set of user-friendly REPLACE tools will be available, adjusted to the needs of end consumers, intermediaries and investors: handbooks including planning guidelines, technology factsheets and implementation guides, an online decision-making support tool for end consumers and professionals, and best practice examples.
- In order to facilitate the decision-making process of end consumers and to offer a tool to professionals, a "REPLACE your Heating System Calculator" will be provided in KAGoP region. The tool can handle one and two- or semidetached family houses up to large volume residential buildings. It highlights aspects of comfort and safety, and includes graphics visualising a risk assessment and will be interlinked to technology fact sheets and implementation guides.
- REPLACE helps the citizens of KAGoP region to take informed decisions by providing technology factsheets specifically addressing end consumers, intermediaries and investors. End consumers will find technical and economic information on modern heating and cooling equipment, professional intermediaries, get in-depth knowledge including e.g. planning guidance, and investors will receive information on e.g. innovative business models and model business contracts, for contracting and for biomass procurement.

- **Topics/ stories**

Despite the COVID-19 crisis the Government provide subsides for installation or replacement of efficient heating systems such as PV, solar thermal collectors and pellet boilers. These campaigns will be great opportunity for the end consumers to get familiarized with the benefit of these renewable heating systems and encourage them to apply for the subsides. The REPLACE campaigns and the ongoing subsidies schemes are parallel activities and share the same goals, decarbonation of the heating sector and a transition towards a clean and sustainable heating options. Such topics and best practice examples are envisioned for the webinars planned for spring/summer 2021.

Some of the topics for the REPLACE project and tools were introduced on the website as a part of successful stories on municipal level.

- *"REPLACE" - a new opportunity for the citizens in the Municipality of Karposh*

The new project "REPLACE" funded by the "Horizon 2020" EU program brings together the municipalities of Karposh, Aerodrom and Gjorce Petrov as a part of the ten countries from Western, Central and Southeast Europe. The project targets the heating and cooling systems of end consumers in individual and collective buildings. The main goal is to introduce energy efficient and economically acceptable heating and cooling system, by showing the main benefits such as electricity saving and money, better air quality and securing a green future.

The heating is considered to be as one of the biggest polluters to our environment. Since the beginning of the project, analyzes of the heating systems in the municipality have been conducted and a database on the current situation has been established. The analyzes showed that 38% of the households in the municipality of Karposh use electricity for heating, 29% of the households are connected to the central heating system, and 33% use wood or fossil fuels to heat their homes. The activities aim to inform and motivate citizens to replace their old and inefficient heating and cooling systems with better and environmentally friendly alternatives. Therefore, campaigns will be conducted. Experts from the municipalities will be part of the Info hubs, and a "REPLACE your heating system calculator" is being prepared, which will be publicly available on the website of the municipality of Karposh. With that the citizens independently or with the professional help from the Department of Energy Efficiency will be able to check which technical solution for replacement of the existing system are applicable and cost-effective.

In times when at national level the legal obligation for the establishment of the "Register of ESCO companies in the field of heating and cooling" still does not work, the project will deal with identification and cooperation with those companies and their communication with consumers interested in investing in their own heating systems. The action for a clean environment, lower PM_{10} and $PM_{2.5}$ emissions and reduced CO_2 emissions is a long-term process that implies bilateral activity of the municipality and the end consumers in order to create more comfortable living conditions.

- *The citizens from municipality of Karposh will be able to check the efficiency of alternative heating*

An online tool is being developed through which the citizens can check the technical and financial aspects for the replacement of their current heating and cooling system with a renewable energy source. This is one of the solutions that is being implemented within the project "REPLACE" from the program "Horizon 2020" of the European Union.

With the development of the tool (which will be available on www.karpos.gov.mk) the end consumers will be able to calculate how much they need to invest, but also how much they will save (medium and long term) by replacement of the inefficient heating system. This is an additional motivation for enhanced use of renewable energy sources, replacement of fossil-fueled systems and improvement of the local air quality and a healthier environment.

The Municipality of Karposh is actively involved in this project and an assessment of the current heating sector in different buildings was conducted in three municipalities (Karposh, Aerodrom and Gjorce Petrov). Having in mind the air pollution as one of the most threating issues, the local government is focused on the replacement of existing heating/cooling systems in individual households into environmentally friendly and economical systems. For instance, in the urban area of Karposh, there are no public institutions that are heated with fossil fuels since the last replacement of the heating system of the kindergarten "Prolet" in Vlae 1 was done.

- **Which topics/stories do we want to work with & which specific occasions for news arise out of this?**

With the **boiler-labelling campaign** we will inform the chimney sweepers and installers about possibilities on one hand and on the other we will inform the consumers about action (handing over a REPLACE information map; technology briefs, REPLACE tool, possibilities for funding, independent advice etc.).

The consumers will be informed about the 6 cost-free feasibility studies through the (R)HC information hubs and through other municipal media. Also, a training for the partners will be provided by the coordinator in order to assess biomass microgrids (connecting 2 or more buildings) or plug-and-play ready stand-alone biomass container heating systems supplying a larger or several buildings – in case this is of interest e.g. for private building developers or public authorities being building owners. The idea of these studies is to spread the findings by publishing show case and the public could relate to a particular example.

The Information Hubs could be a great opportunity to show those studies and other relevant information of the project. As the info hubs are among the first activities to be developed, they offer a ground for the promotion of further campaigns.

Beside the information hubs, another activity that will be conducted within a short time frame (during the spring/summer 2021) are the webinars. Taking into consideration the COVID-19 situation, the only way to promote and share first insights of the project are the webinars. This way the project and the upcoming event will be advertised to a wider public and will be linked to external topics. The concept of the three consecutive webinars is following:

1. REPLACE introduction and best practice example (interregional/regional)
2. Decarbonization of the heating sector & different technology options
3. REPLACE your heating systems calculator

What is really important is all activities to be properly observed from the beginning to the end, to follow the group and their feedback throughout. Last, but not least a comprehensive reporting with quality summary is key for further dissemination.

Selection of activities and instruments (potentially include various media)

In order the campaigns to have maximum impact, they require solid promotion via various media. Press releases are very important when announcing an event and summarizing the key conclusions afterwards. They will be part of each event - online or onsite. The activities in the campaign will be further promoted thought personal contacts, for instance the contacts of the LWG or other partners.

Various materials, such as flyers, posters, technology briefs and handbooks will be a source of information for end consumers available on the open days, seminars, conferences (if possible) and in the information hubs. SDEWES will compile all relevant printed materials from the REPLACE project and from other relevant projects. The materials will be distributed to the municipalities in equal shares. The energy departments of the municipalities should compile all relevant printed materials available to them from their own projects or activities. For instance, the contact information of the

energy departments of the municipalities is already available online. Hence, citizens may contact them for any energy-related questions. This mode of communication and outreach is rather limited, since not all end consumers are aware of this opportunity. Those that are aware of it have to navigate through the websites of the municipalities to find the contact information. Then, they need to contact the energy departments by email or via a direct phone call. Nevertheless, it is often the case that citizens are only interested in one piece of information or they want to obtain a general picture of the available subsidy and replacement campaigns. It may therefore be inconvenient for them initiate a direct communication with municipality representatives for these types of matter. As a result, the capabilities of the energy departments in the municipalities could end-up underutilised and dormant. The promotion of the (R)HC information hubs will be of utmost importance to deal with this issue. The (R)HC information hubs need to be actively promoted through the municipal websites and dedicated social media pages. SDEWES should compile all relevant digital materials from the REPLACE project and from other relevant projects. Digital copies of the materials will be sent to the municipalities.

Regarding the social media (mostly website and Facebook), the LWG is regularly publishing all the updates related to the REPLACE project and will continue for the campaigns as well. The promotion will be related to:

- Replacement campaign activities in REPLACE (energy offensive, open days etc.)
- News on municipal replacement campaigns and activities
- News on enabling subsidy schemes of promotions
- Local market opportunities
- Best practices for heating and cooling (from REPLACE and other projects)
- Simple educational information on different technologies
- General flyers and posters

To maximize visibility, each post should deal only with one piece of content. For example, one best practice example (e.g. local or international), one technology (e.g. solar thermal collectors), one news information, one flyer or newsletter etc. This strategy should ensure that there is sufficient information to be shared on social media for a long duration of time.

Another innovative idea challenging to accomplish is the virtual contact point. The Facebook pages will be optimised to motivate viewer engagement. This will be achieved by automatically opening the Facebook messenger chat box with a message such as:

"We are here to help you with the replacement of your old heating system or with other energy-related refurbishments. Please let us know your questions here on through our other communication modes: Tel. +389XXXXXXXX or email: municipality@municipality.gov.com".

The promotion of the campaign and the project will be done through the newspaper of the municipalities (printed 20.000 copies). Furthermore, a short informative video of the project is part of the activities for promotion. The newsletter is disseminated in more than 15 other municipalities informing the representatives for the upcoming campaigns and encourage to attend and contribute. With that said, a direct communication such mailing and phone calls is a starting point for promotion.

The following figure shows the schedule for the planned media activities in North Macedonia, having started already in January 2021 and running until the end of the project. In North Macedonia, strategic activities to foster the transfer to sustainable heating systems are planned in the categories media work, personal contacts, own media, social media, face-to-face meetings, direct communication and miscellaneous.

For reasons of clarity only the categories and the months in which the activities are scheduled are shown below. The detailed overview can be found in Annex IV at the end of the document.

	year	2021												2022							
	month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
Category	week	1	5	9	14	18	23	27	31	36	40	44	49	1	6	10	14	18	23	27	31
Media work																					
Personal contacts																					
Own media																					
Social media																					
Face-to-face meetings																					
Direct communication																					
Miscellaneous / Other																					

Figure 53: Simplified timeframe of media activities to support the actions in North Macedonia

3.7 Republic of Serbia

The citizens of Sabac were convinced of the negative effects of climate change on their own example in the beginning of 2014, when floods occurred which caused huge material damage to the agricultural sector and almost completely stopped all economic activities in the city. Environmental protection, and especially the issue of air quality, has been a key issue addressed by the non-governmental sector and environmental activists for several years. In the agenda of decision makers at the local level (as well as at the level of state authorities), activities to reduce PM particulate emissions have been given priority status. Citizens' initiatives to immediately adopt and implement measures that will contribute to the reduction of GHG emissions and reduce emissions of harmful pollutants are becoming louder. The main causes of poor air quality are the energy sector, namely coal-fired power plants, individual stoves for heating residential space, coal or log-wood boilers which are used but in an inefficient way, traffic and industrial furnaces that use fossil fuels.

In February 2020, one of the civic initiatives was the installation of nonprofessional devices for measuring the concentration of PM2.5 and PM10, networking and opening the measurement results on a real-time online platform. The goal of this initiative was not to establish competition with official measurements performed by state institutions, but to raise citizens' awareness that individual stoves, coal and log-wood inefficient boilers are the dominant source of air pollution in Sabac.

Another significant problem is the high consumption of energy for heating as a consequence of poor energy performance of buildings in Sabac, which were built in the 60's, 70's and until 2011 when the Rulebook on energy efficiency of residential buildings and the Rulebook on conditions, content and the manner of issuing certificates on energy performance of buildings were adopted by the state's administration. The first collective actions in the city were aimed at solving the problem of energy consumption in multi-family buildings that are connected to the district heating network. The aim was to motivate housing communities to approach the building thermal insulation project using subsidies provided by the city to participate in this project. In the period from 2010 to 2018, 40 communities in multi-family buildings and 40 owners of single-family households participated in the project. A different financing model has been applied since 2019, with subsidies being abolished, but this has been compensated by the introduction of long-term repayment of the investment, in such a

way that the annual pay-off loan rates are less than the heating bills before the project. The local energy company was assigned the role of ESCO and the money for the investment was provided by a contract between the local DH Company (JKP "Toplana-Sabac") and the European Bank for Reconstruction and Development (EBRD). The project slowed down in the period 2020-2021. due to the measures adopted at the local and state level against the COVID pandemic19.

However, decision-makers in Sabac recognized the importance of the transition to green technologies in the local energy sector. In support of activities related to more efficient use of energy and increasing the share of renewable energy in the energy mix, the document Energy Policy of the City of Sabac was adopted (adopted by the Assembly of the City of Sabac in 2018, revision and amendment in 2020). This document defines the framework for the local energy development and obliges the local administration and other stakeholders that the deadline for completing the transition is 2050, by which time the city of Sabac should be independent of the use of fossil fuels (decarbonisation).

Relying on the goals from the document Energy Policy of the City of Sabac, the term "open door" was introduced in which the citizens of Sabac were allowed to talk to engineers from the local energy company and get advice on energy efficiency measures and replacement of old and inefficient devices using fossil fuels in their homes with more efficient technologies that use renewable energy.

In addition to the initiative to establish a civic network for measuring the concentration of PM particles, representatives of local communities in suburban settlements are discussing a model for financing small district heating networks with wood-fired boilers or heat sources that use renewable energy. Topics discussed are the joint procurement of wood pellets for users who have replaced fossil fuel boilers with pellet boilers or intend to do so in the next heating season as well as the joint procurement of pellet boilers or heat pumps to ensure lower investment costs and use advice from experienced engineers and designers.

The establishment of the Academy for Energy Efficiency and Renewable Energy is very important from the aspect of raising awareness of the benefits of replacing fossil fuels with renewable energy as well as the significance of efficient use of energy. Activities on the establishment and organization of the Academy began in 2020 and by the end of 2021 a formal start of work is expected, first with selected groups of primary and secondary school students in Sabac and in the coming years the target groups will be citizens of Sabac, primary and secondary school students, installers, engineers and all other stakeholders from Serbia and the region.

Within the REPLACE project, the implementation of eight activities were planned, listed in the following table:

Table 38: Information about the implementation of the chosen activities

No.	Action	Timeframe	Stakeholders
1.	Six techno-economic feasibility studies	January 2021 – August 2022	municipality' representatives energy experts end-users
2.	REPLACE (R)HC replacement information hubs	January 2021 – September 2022	municipality' representatives local communities installers end-users
3.	100 % renewable heating or cooling labelling campaign	January 2021 – September 2022	Local Economy Development Department (LED) LWG end-users

4.	Best practice RHC systems open day/house events	January 2021 – September 2022	municipality' representatives local heating company's staff installers investors end users
5.	Two to three webinars on the usage of the "REPLACE your Heating System Calculator" and the "Online technology briefs with info-graphics"	January 2021 – September 2022	Local Economy Development Department (LED) DH company Installers Heating/Cooling equipment distributors end-users Academy for EE end RES
6.	Show case - support of installers and/or energy utilities/service companies to become plant (+ energy efficiency) contractors	January 2021 – September 2022	municipality's representatives local heating company's staff investors installers
7.	Realisation of a pilot project for replication – innovative collaboration models between installers and plant (+energy efficiency) contractor	January 2021 – September 2022	municipality's representatives local heating company's staff Academy for EE and RES Installers condominium's representatives
8.	Show-case - realisation of collective actions	January 2021 – September 2022	municipality's representatives local communities bank's officers heating/cooling equipment traders end-users

3.7.1 Activity 1 - Six techno-economic feasibility studies

A good decision is based on information, in this case the end customer is interested in the amount of investment, repayment time and costs during the use of heating devices. Climate change and environmental protection have become very important topics for all citizens, so this information has gained importance and can often contribute to the decision to replace an old and inefficient fossil fuel boiler with a more efficient boiler using wood pellets or a heat pump.

The use of a heat pump as well as the use of a solar thermal system to support the heating system implies good thermal properties of the building, so the owners or users must be instructed that in addition to choosing a heating system must pay attention to the quality of the thermal envelope of their building. The message must be conveyed to end customers that there is no safe and cheap heating if the thermal properties of the building are not at a satisfactory level.

Techno-economic analysis of the replacement will be done by experts from a local district heating company. For that purpose, four single-family buildings and two multi-family buildings will be selected, and through a conversation with the owners, data will be collected on the basis of which the necessary calculations will be made, and then a report and a proposal for the optimal solution will be made.

Table 39: Feasibility studies based on building types and heating systems used

Building type	Number of studies	Current heating system	REPLACE option
Single family house	2	Coal	Wood pellet boiler
Single family house	2	Coal	Heat pump (plus façade thermal insulation)
Multifamily house	2	District heating	District heating and heat pump (plus façade thermal insulation)

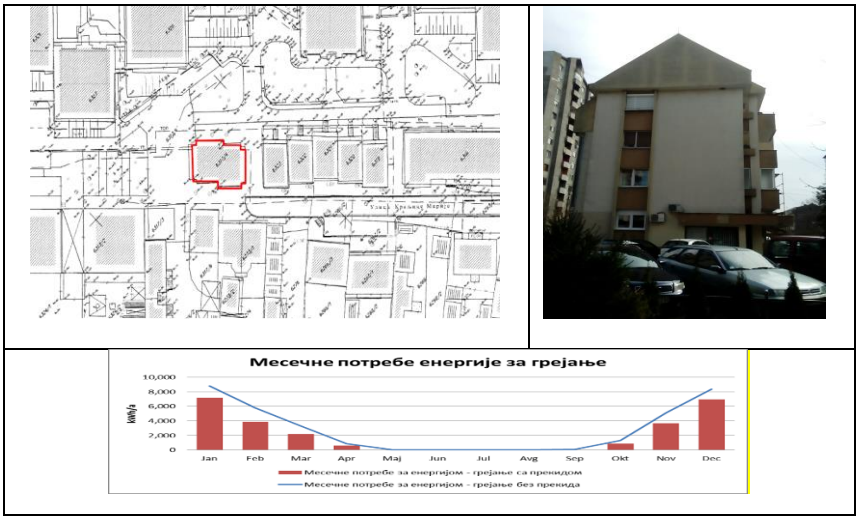


Figure 54: Six techno-economic analysis (illustration)

Table 40: Overview of actions, timeframe and stakeholders in Activity 1

No.	Action	Timeframe	Stakeholders
1.	Informative meeting when will be discussed approach and goals of Action 1	January/February 2021	Municipality representatives, DH company representatives
2.	Beneficiaries identification	March 2021	Municipality representatives DH company representatives End - users
3.	Conduction of six feasibility studies	April 2021 – August 2022	Municipality representatives DH company representatives End - users

Implementation barriers:

Due to the COVID-19 pandemic, all meetings will be organized online, depending on the recommendations of the competent institutions.

3.7.2 Activity 2 - REPLACE (R)HC replacement information hubs

Information to end users on replacement activities and campaigns to be carried out will be shared on three sides. On behalf of the municipality, information will be distributed by the Department of Local Economic Development (LED Department). Flyers related to the project and other materials such as technical information on renewable energy devices and technologies with offers of commercial banks to finance the replacement of old and inefficient devices, and information on incentives created by local and state authorities will be available at the information desk at the entrance to the local administration building. An identical information desk will be located at the location of the Center for Professional Development at the location of the Academy for Energy Efficiency and Renewable Energy. In addition, the LED Department will share information on project activities and campaigns through the official portal of the city of Sabac. Printed materials will be available to citizens (end users) and in the premises of local communities that work very closely with the LED Department.

Figure 55: REPLACE (R)HC replacement information hubs (illustration)

Experts from the district heating company will be in charge of sharing information about the project, as well as communication with citizens, primarily about the technical aspects of the replacement. They will communicate with end users in two ways, in a direct conversation but also through social networks (facebook) and using the company's web portal. The web portal will contain information on current activities and examples of good practice, and social networks will be used to share experiences and initiate and direct collective actions.

Members of the local working group (LWG) will use social networks but also organize meetings in the premises of local communities where priority will be given to the participation of installers and design engineers who will help end customers to find optimal solutions and all on an informed decision.

Table 41: Overview of actions, timeframe and stakeholders in Activity 2

No.	Action	Timeframe	Stakeholders
1.	Members of LWG, LED Department and staff of DH Company participate at meeting where will discussed information hub organisation	January 2021	Municipality, LED Department LWG DH company
2.	Information sharing via social networks	February 2021 - September 2022	Municipality LED Department DH company LWG
3.	LWG meetings	February 2021 – September 2022	LWG

Implementation barriers:

Due to the COVID-19 pandemic, all meetings will be organized online, depending on the recommendations of the competent institutions. Number of participants at meetings is limited to max. 5 persons indoor and outdoor.

3.7.3 Activity 3 – 100% renewable heating and cooling labelling campaign

Figure 56: 100% renewable heating and cooling labelling campaigns (illustration)

The Assembly of the City of Sabac adopted the document "Heating Zones and Gasification Zones", which defines in a very flexible way the change in the scope of zones in which buildings are connected to the district heating network or to the gas distribution network. Taking into consideration that the strategic plan of the city is to increase the share of renewable energy, priority is given to the development of the district heating network. A solution that was adopted promotes the expansion of the district heating network, the district heating zone is expanded but the gasification zone will diminish. Support for the transition to green technologies relies on the construction of new heat generation plants that will use renewable energy and that will be gradually integrated into the district heating system.

Buildings that use 100% renewable energy have no obligation to connect to the district heating system or to connect to the gas distribution network and essentially form the third zone, ie the zone of renewable energy.

The mentioned document introduces the obligation to establish a local register of renewable energy users. All owners of buildings in which renewable energy technologies are implemented are entered in this register before obtaining a use permit for a newly constructed building.

The REPLACE activity will support an action to register already constructed buildings that use renewable energy. Activities of LWG will be focused on decision-makers to create an incentive model to subsidize the using renewable energy in the case when end-user use renewable energy for their own needs.

Table 42: Overview of actions, timeframe and stakeholders in Activity 3

No.	Action	Timeframe	Stakeholders
1.	100 % renewable heating or cooling households labelling	January 2021 – September 2022	LED Department DH company end-users
2.	Campaign oriented to decision-makers to support end-users through incentives schemes	May 2021 – September 2022	LWG

Implementation barriers:

Due to the COVID-19 pandemic, all meetings will be organized online, depending on the recommendations of the competent institutions. Number of participants at meetings is limited to max. 5 persons indoor and outdoor.

3.7.4 Activity 4 - Best practice RHC systems open day/house events

The best way to promote replacement goals is to discuss examples of good practice with end-users who have already replaced their old and inefficient fossil fuel appliances with new, more efficient renewable energy devices.

The district heating company organizes weekly meetings for the citizens of Sabac, who are users of the company's services, but also for those who are not. At these meetings they discuss the reduction of energy consumption and energy efficiency measures, as well as the application of new technologies that use renewable energy. Engineers employed by the company monitor and analyze energy consumption in buildings connected to the district heating network and have performed individual energy audits of buildings. Lessons learned are shared with citizens and advice is given on how to improve the energy performance of buildings.

“Open day” events will be held as part of the REPLACE activities two times a week for 90 minutes, and citizens will be invited to attend, ask questions of interest and discuss examples of good practice. End users who have already applied some of the energy efficiency measures or replaced their old and inefficient boilers will also be invited to the meetings. The topics of conversation includes information on the work of the nonprofessional network for measuring the emission of PM particles with sensors installed in parts of the city dominated by old and inefficient coal and wood boilers. The aim is to draw attention to the impact of individual furnaces in which fossil fuels or split wood are burned in a very inefficient way on the air quality in the city.

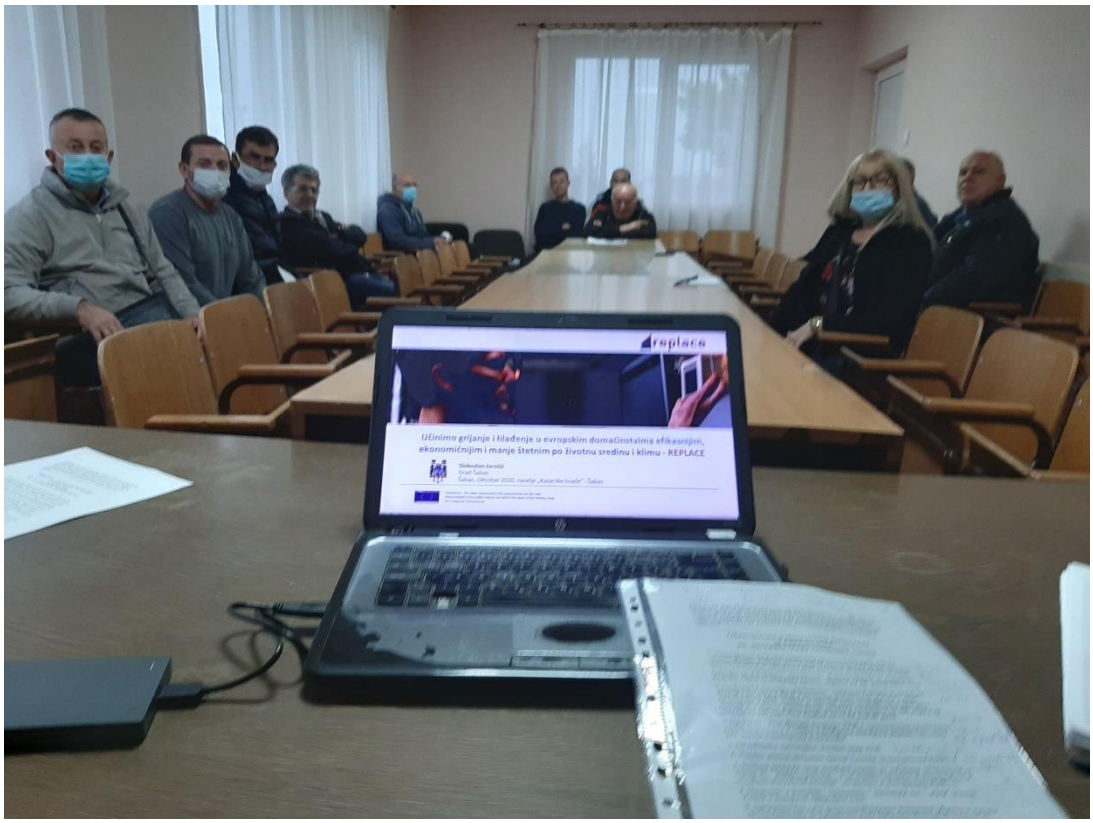


Figure 57: Best practice RHC systems open day/house events (Illustration)

Table 43: Overview of actions, timeframe and stakeholders in Activity 3

No.	Action	Timeframe	Stakeholders
1.	Identifying the best practice examples	January 2021	DH company LWG
2.	Organisation of "open door" events twice days per week	February 2021 – September 2022	DH company LWG End users
3.	Organisation meetings with local communities at least one meeting per week	April 2021 – September 2022	DH company LWG End users Installers

Implementation barriers:

Due to the COVID-19 pandemic, all meetings will be organized online, depending on the recommendations of the competent institutions. Number of participants at meetings is limited to max. 5 persons indoor and outdoor.

3.7.5 Activity 5 – Two to three webinars on the usage of the "REPLACE your Heating System Calculator" and the "Online technology briefs with info-graphics"

Three webinars are planned to be moderated by the Department of Local Economic Development. The target groups are investors, installers, end users and participants of the courses that will be held within the activities of the Academy for Energy Efficiency and Renewable Energy Sources.

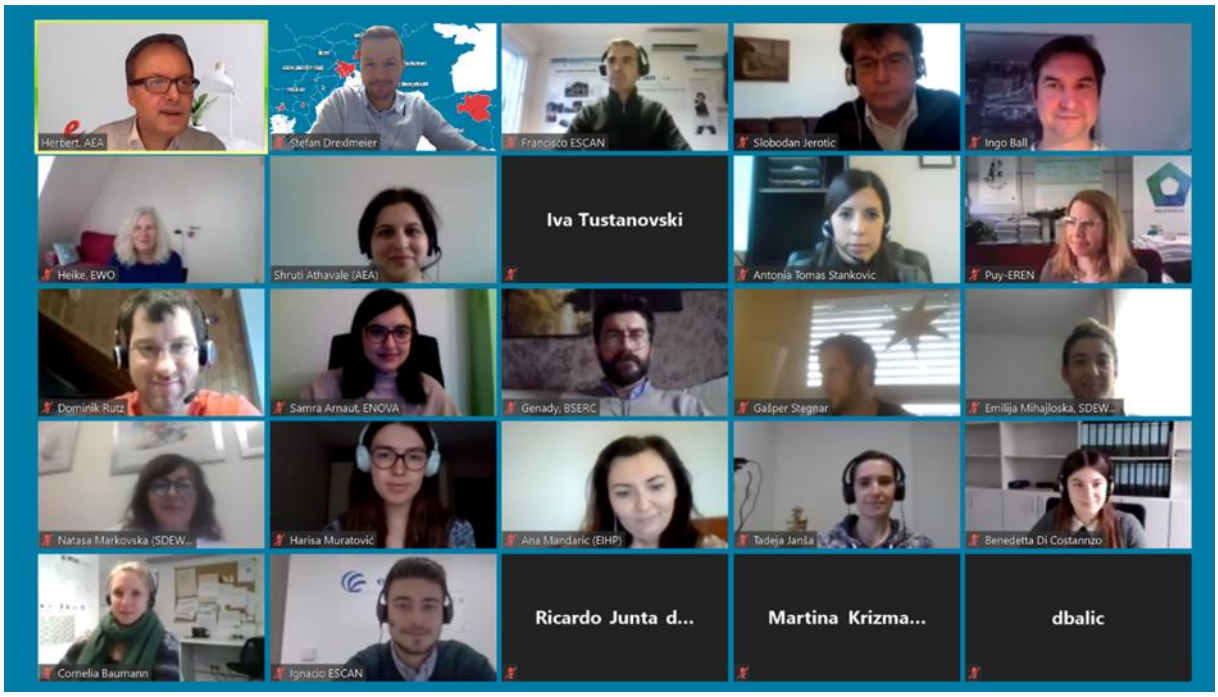


Figure 58: Webinars on the usage of the "REPLACE your Heating System Calculator" and the "Online technology briefs with info-graphics" (illustration)

Webinar participants will be introduced to the options and capabilities of the REPLACE Heating System Calculator. The calculator will be posted on the web portals www.sabac.org and www.toplanasabac.rs.

Stakeholders will be able to independently analysis and create their own renewable heating system.

Table 44: Overview of actions, timeframe and stakeholders in Activity 5

No.	Action	Timeframe	Stakeholders
1.	Preparation material for webinars and set up on-line REPLACE HS Calculator	January 2021 – September 2022	LED Department DH Company
2.	Organisation webinar for installers	June 2021	LED Department Installers DH company HC equipment distributors
3.	Organisation of webinar for end - user	July 2021	LED Department Installers DH company HC distributors end-user
4.	Organisation webinar for Academy for EE and RES participants	March 2022	LED Department DH company

			Installers HC distributors Academy for EE and RES

Implementation barriers:

Due to the COVID-19 pandemic, all meetings will be organized online, depending on the recommendations of the competent institutions. No implementation barriers that could disturb webinars are visible now.

3.7.6 Activity 6 - Show case - support of installers and/or energy utilities/service companies to become plant (+ energy efficiency) contractors

A serious approach to the transition from fossil fuels to the use of renewable energy and new efficient technologies is not possible without the support of the local administration. The Assembly of the City of Sabac adopted the document Energy Policy of the City of Sabac, which sets up the framework for the local energy development. The document shows that the strategic goal of the city is sustainable development that relies on efficient use of energy and permanent increase of the share of renewable energy in the energy mix until complete decarbonisation is reached (2050).

For this reason, decision makers encourage investors, installers and energy companies to negotiate with local communities (end users) implementation of renewable energy projects. These would be the following projects:

- Small district heating networks in suburban and rural settlements with wood-chips boilers,
- Local wood biomass boiler rooms in parts of the city where there is no built-up district heating network, suburban and rural settlements,
- Heat pumps within the existing heat substations that would be used for heat supply for space heating and preparation of warm sanitary water and for cooling during the summer months,
- Thermal solar system installations to support space heating or sanitary water heating.

Decision makers encourage investors and energy companies to plan and implement renewable energy projects such as high-capacity heat pump plants that would use waste heat or cogeneration plants from which waste heat would be used in the district heating system of the city of Sabac.

Figure 59: Show case - support of installers and/or energy utilities/service companies to become plant (+ energy efficiency) contractors (Illustration)

Table 45: Overview of actions, timeframe and stakeholders in Activity 6

No.	Action	Timeframe	Stakeholders
1.	Identifying investors, installers or energy companies that will be interested to participate at local energy market	January 2021 – May 2021	Municipality LED Department LWG Investors Installers DH company
2.	Discussion local market framework for energy services and possible renewable energy projects	May 2021 – June 2021	Municipality LED Department LWG Investors Installers DH company
3.	Discussion business & financial models	July 2021 – September 2021	LED Department LWG Investors Installers DH company Banks
4.	Discussion technical solution, business & financial model with local community/end-users	October 2021 – December 2021	Municipality LED Department LWG Investors Installers DH company Banks Local communities

5.	Negotiation and contracting projects	January 2022 – September 2022	Municipality Investors Installers DH company Local communities Banks

Implementation barriers:

Due to the COVID-19 pandemic, all meetings will be organized online, depending on the recommendations of the competent institutions. Number of participants at meetings is limited to max. 5 persons indoor and outdoor.

Conditions to finance renewable energy project and some kind of incentives by the local administration or National budget fund could be the most important factor to support realisation of renewable energy projects.

3.7.7 Activity 7 - Realisation of a pilot project for replication – innovative collaboration models between installers and plant (+energy efficiency) contractor …

The REPLACE project motivates the implementation of innovative solutions and long-term activities such as new financial models and raising citizens' awareness of the need to protect the environment and the implementation of measures to mitigate the negative effects of climate change.

Such activities could include the establishment of the Academy for Energy Efficiency and Renewable Energy Sources, which would transfer knowledge about new technologies and share experiences on examples of good practice. A training and education program is planned for pupils and students through experiments and small models of devices that use renewable energy. Within the Academy, training would be provided for engineers, energy consultants and installers, and real devices would be used that are used for practical training or are even in function at the location where the academy is located (Letnjikovac settlement in the southern part of Sabac). Workshops and discussions about examples of good practice would be organized for end users within the Academy.

Figure 60: Realisation of a pilot project for replication – innovative collaboration models – Public ESCO model (Illustration)

The activities of the Academy will continue after the completion of the REPLACE project.

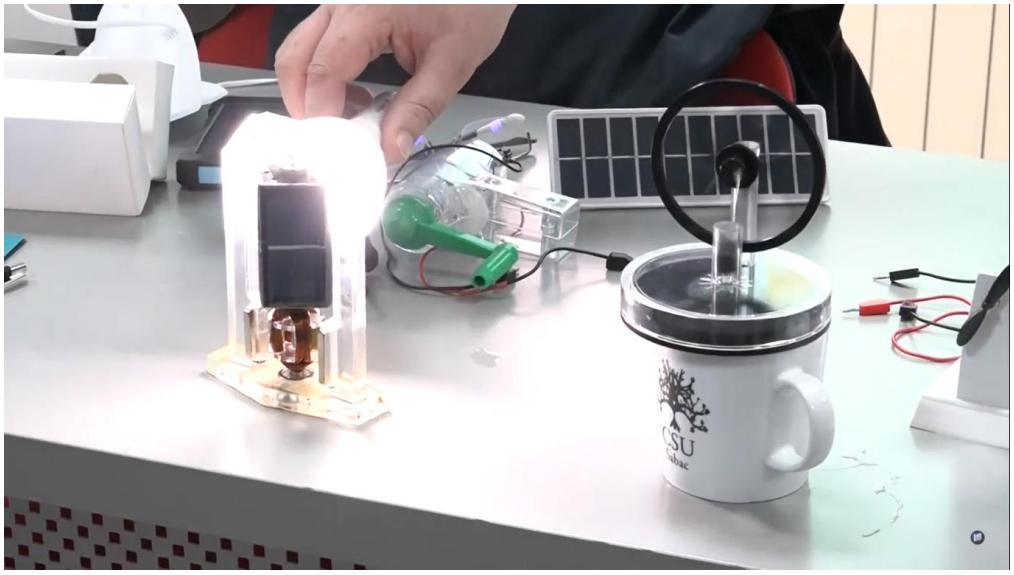


Figure 61: Realisation of a pilot project for replication – innovative collaboration models – Academy for energy efficiency and renewable energy (Illustration)

Some of the renewable energy technologies cannot be applied in the case when buildings have too high energy consumption due to poor thermal properties of the building envelope. In the middle and end of the last century, not enough attention was paid to energy consumption and most of the buildings built in that period did not have good enough thermal properties. A particular challenge is the improvement of thermal properties of multi-family residential buildings due to the specific way of deciding on the application of energy efficiency measures and the implementation of renewable energy projects. The consensus for energy efficiency projects and replacement projects is sometimes 50% of the votes of users / apartment owners and sometimes 65% and even 100%. The method of financing the project is also a challenge because housing communities are often "invisible" to the banking sector. Banks consider doing business with housing communities to be high-risk operations, which is a serious barrier to project implementation.

One of the innovative solutions is a business model in which the local district heating company takes over the role of ESCO, contracts with the bank a loan for the implementation of energy efficiency and replacement projects and takes over the role of investor instead of apartment owners / users repaying the investment from savings that will be accomplished in long-term period. The effect is a reduction in energy consumption and the use of cheaper renewable fuels and energy.

Table 46: Overview of actions, timeframe and stakeholders in Activity 7

No.	Action	Timeframe	Stakeholders
1.	Program for Academy for EE and RES	January 2021 – August 2021	Municipality LED Department Center for adults education
2.	Academy become operational	September 2021	Municipality Center for adults education Academy
3.	Program of building renovation	Januar 2021 – September 2022	Municipality DH company Condominium representatives EBRD representatives Contractor

Implementation barriers:

Due to the COVID-19 pandemic, all meetings will be organized online, depending on the recommendations of the competent institutions.

The method of decision-making in condominiums poses a risk to the banking sector, which is reflected in the approval of a very small number of loans for the implementation of energy efficiency and renewable energy projects.

3.7.8 Activity 8 - Show-case - realisation of collective actions

Collective actions are a good approach to the realization of the goal to provide the best possible conditions (financial and logistical) for the implementation of energy efficiency measures, procurement of biomass boilers and other devices using renewable energy technologies as well as procurement of wood pellets.

Figure 62: Show-case - realisation of collective actions (Illustration)

An example of good practice is the establishment of energy cooperatives that would support citizens in the implementation of replacement projects.

Table 47: Overview of actions, timeframe and stakeholders in Activity 8

No.	Action	Timeframe	Stakeholders
1.	Identifying collective actions	January 2021 – August 2022	LWG End users Energy cooperatives Installers Energy advisers
2.	Participating in energy efficiency project – Energy efficiency in Buildings	April 2021 – September 2022	LWG DH Company Condominium representatives
3.	Organisation of wood pellet procurement	May 2021 – September 2021 Maj 2022 – September 2022	LWG End users Wood chips suppliers Energy cooperatives
4.	Organisation of wood pellet boilers procurement	May 2021 – September 2022	LWG End users Installers Energy Advisors Energy cooperatives

Implementation barriers:

Due to the COVID-19 pandemic, all meetings will, if necessary, be organized online, depending on the recommendations of the competent institutions.

Number of participants at meetings is limited to max. 5 persons indoor and outdoor.

3.7.9 Media cooperation strategy

Project activities will be supported by publications in local media, printed and electronic as well as on the web portals of the city of Sabac and DH company. Information about the project will be available on electronic media with a national frequency in order to be available to a larger number of people in Serbia and the region. Discussions on the effects of the undertaken actions and campaigns with the use of IT tools will be initiated on social networks in order to ensure the participation of as many citizens of Sabac as possible.

In addition, members of the working group will participate in webinars and expert meetings where they will present the goals and expected results during the project as well as the impact of the project after completion, particularly in the Academy for Energy Efficiency and Renewable Energy which will be formally operational in 2021

The time frame of media activities is shown in the following figure.

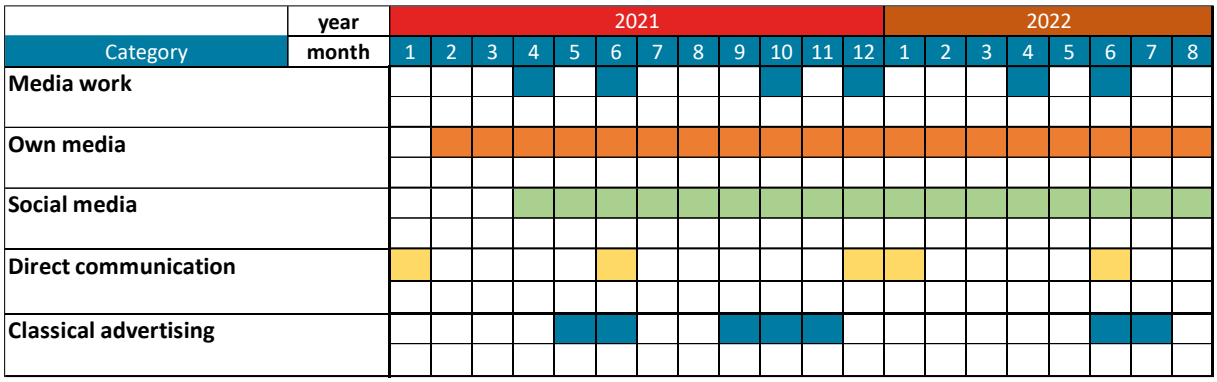
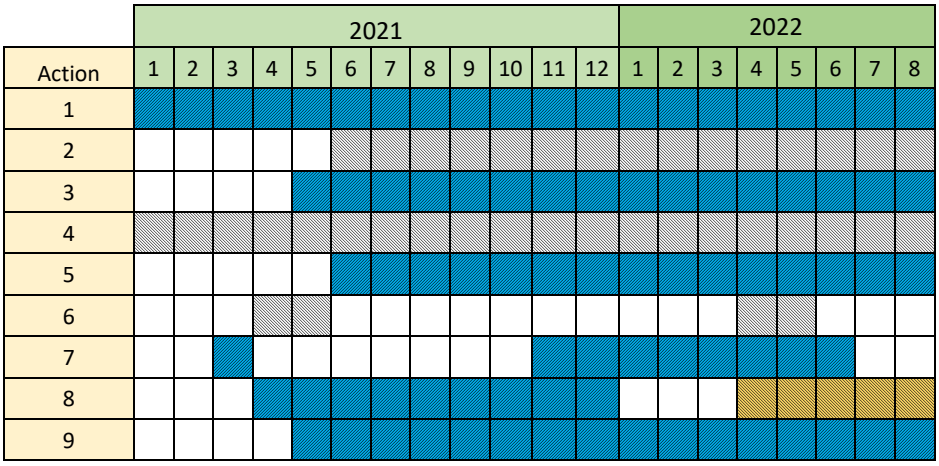


Figure 63: Simplified timeframe of media activities to support the actions in the City of Šabac

3.8 Slovenia

In the scope of REPLACE campaign, 9 different actions will be carried out until the end of the project. Two of them (Actions 2, 4 and 6) depend of Covid-19 restrictions, since it requires physical gatherings and the exact timeframe of those is yet to be determined. Out of 9, 2 of them (Actions 8 and 9) are considered as a collective action that aims to boost the replacement rate of old, inefficient heating systems. Figure 64 shows the time-frame for each campaign that will be carried in cooperation with LWG members.



ongoing campaign

timeframe cannot be yet determined due to Covid-19 restrictions

execution of 2nd campaign depends on the success and interes od the 1st

Figure 64: Time-frame of planned REPLACE campaigns in Slovenia

3.8.1 Activity 1 - Policy driven "Energy-saving campaign" with annual labelling for boilers

At campaign preparation, the annual labelling for boilers is not yet mandatory, thus a policy-driven offensive is necessary. The chimney sweepers already make annual inspection of boilers and label them with data on its footprint.

Action "Policy driven Energy-saving campaign with annual labelling for boilers" will primarily seek to encourage ministries to encourage additional label of the existing ones with labelling of the boilers in order to meet the requirements of EcoDesign Directive.

It will involve conduction of interviews with ministries in order to gain insight into their mind-set on the connection with the Ministry of Environment and Spatial Planning and Ministry of Infrastructure. The aim of discussions is to make step forward in boilers labelling implementation. During the two years implementation, we will inform end-consumers through an intensive media campaign and promotion on social networks. Those who are interested will be able to contact us and get their boilers labelled.

Table 48: Overview of the Activity 1 implementation plan

No.	Action	Timeframe	Stakeholders
1.	Meetings organization Information on labelling benefits Preparation of basis for mandatory energy labelling of the boilers	February 2021 – September 2022	Ministries
2.	Labelling of boilers	May 2021 – August 2022	Chimney sweepers, end-users

Figure 65: Annual labelling for boilers

Implementation barriers:

Demonstration cases of energy boiler labelling can be carried out in cooperation with chimney sweepers. The main challenge is to establish annual mandatory energy labelling trough national regulation. The later depends on many factors, e.g. willingness of ministries to update the existing regulation. The main efforts will be directed into presentation of the enforcing EcoDesign Directive that requires energy labelling of the heating system[40].

3.8.2 Activity 2 - Six techno-economic feasibility studies

Many households are not aware of techno-economic feasibility studies and have no experience or knowledge. Therefore, this Action 2 will serve as capacity building and it will encourage end-users to use the "REPLACE your heating system calculator", since they mainly don't use such any approach when choosing a heating system.

The activity will be implemented with the support of municipalities and energy advisory offices, so the consumers who need to replace their heating system will be identified. In this way, municipalities gain an insight into what investments are needed for implementation, and what benefits they realize with the same investment, which could enable them to develop their financial plan and strategy in the right direction.

Prior to conducting the techno-economic feasibility study, all identified beneficiaries will be acquainted with the Project, the execution procedure and the information that needs to be provided, as well as the contract between the beneficiary and the project team. Projects realized during campaigns life may become show cases, if consumers give their consent.

An overview of the planned activities of the Action, direct and indirect stakeholders and the time-frame can be found in the table below.

Table 49: Overview of the Activity 2 implementation plan

No.	Action	Timeframe	Stakeholders
1.	Identification of beneficiaries	June 2021	Energy advisors, municipalities, end-users
2.	Conduction of six feasibility studies	June 2021 – August 2022	Energy advisors, municipalities, end-users

Implementation barriers:

Due to unknown situation regarding Covid-19 the exact dates of Festival OHS 2021 aren't known yet. As it stands, the festival is expected to take place in late May 2021.

[40] https://www.buildup.eu/en/news/overview-ecodesign-and-energy-labelling-gas-and-oil-boilers-0

3.8.3 Activity 3 - REPLACE (R)HC replacement information hubs

The REPLACE information Hub will be operated in the scope of energy advisory offices. 55 such offices are located throughout the Slovenia and each of them will be equipped with REPLACE project flyers, posters, rolls ups, technology briefs, handbooks, information on REPLACE offers and activities which will be open to the interested citizens. Furthermore, an energy advisor will be trained to elaborate the idea behind the information hub to the end users or relevant stakeholders in the scope of Actions 7 and 8. Anyhow the other members of the LWG might include such hubs in their organization if possible.

Table 50: Overview of actions, timeframe and stakeholders for Activity 3 in Slovenia.

No.	Action	Timeframe	Stakeholders
1.	Preparation of the material	May 2021	LWG members
2.	Sending out the material to energy advisory offices	May 2021	LWG members
3.	Promotion	May 2021 – August 2022	LWG members

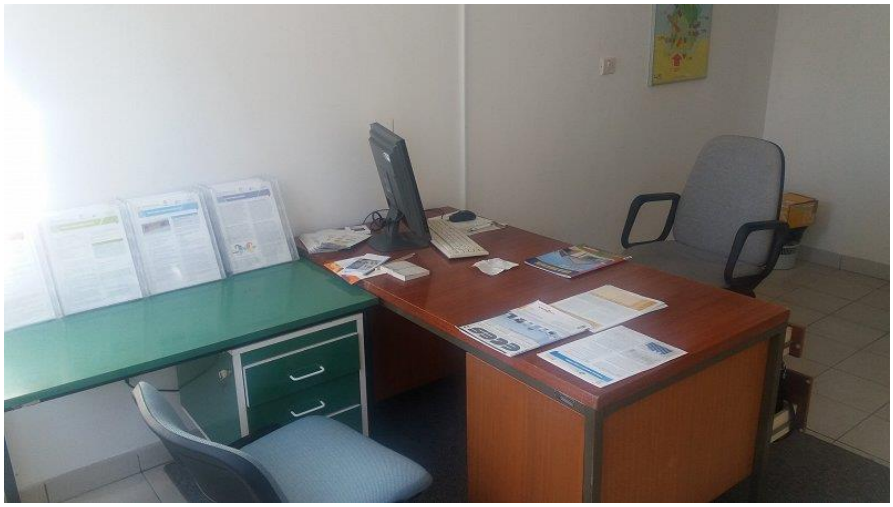


Figure 66. An example of information hub in energy advisory offices

3.8.4 Activity 4 – Information points on consumer's fairs

Building-themed consumer fairs and festivals are often organized in Slovenia, e.g. Sejem Dom, Sejem Dom+, Ambient etc. Should such event take place in the period of REPLACE project, information points will be established in cooperation with Eco fund.

Table 51: Overview of action, timeframe and stakeholders for Activity 3 in Slovenia.

No.	Action	Timeframe	Stakeholders
1.	Information points on consumer's fairs	Unknown	LWG members

Implementation barriers:

Due to unknown situation regarding Covid-19 the exact dates of Festival OHS 2021 aren't known yet. As it stands, the festival is expected to take place in late May 2021.

Figure 67: An example of information points on consumer's fairs

3.8.5 Activity 5 - Labelling-campaign for 100 % renewable heating or cooling

Action 5 will be promoted through LWG members that can reach municipalities in Slovenia. The households that use technical systems for heating, cooling and domestic hot water preparation that exploit renewable energy sources will be invited to the campaign and will receive 100 % renewable heating or cooling label, should they meet the conditions of such system.

Table 52. Overview of actions, timeframe and stakeholders for Activity 5 in Slovenia

No.	Action	Timeframe	Stakeholders
1.	Preparation of the campaign	February – June 2021	LWG members, end users
2.	Printing of the material	May 2021	JSI
3.	100 % renewable heating or cooling households labelling	June 2021 – August 2022	LWG members, end users

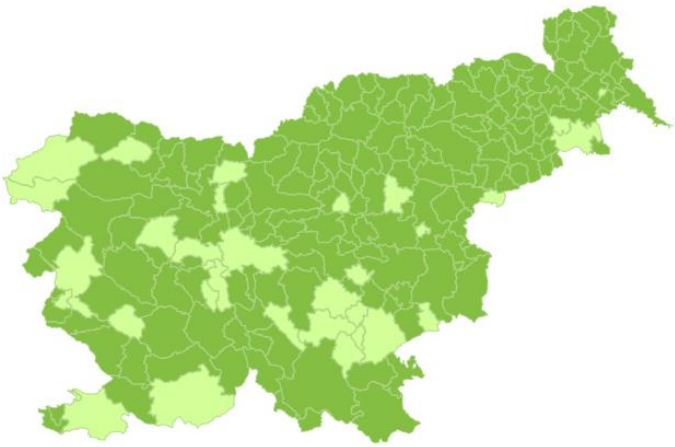


Figure 68. 212 municipalities in Slovenia that will be informed of 100 % renewable heating labelling

3.8.6 Activity 6 - Best practice RHC systems open day/house events

Open day or house events regarding best practice RHC systems in Slovenia will be organised with cooperation of “Odprte hiše Slovenije” (en. Open House Slovenia, OHS). OHS is an annual festival of open door days. Passive and other building owners open their doors to show visitors what highly energy efficient buildings are all about. As well as all the opportunities to talk and learn about Passive House, participants can experience Passive House buildings, both residential and non-residential, for themselves. In collaboration with OHS, residential buildings that replaced their heating system will be presented in the scope of Action 6.

Interested consumers can visit households which have already switched their heating system as well as installers and renewable energy companies. JSI with the members of the local working group will identify and contact potential show cases.

The event will be advertised on the websites of the LWG member to enhance the promotion. Such promotion might increase the number of interested consumers who will be able to visit households which have already switched their heating systems; thus it might encourage them the replicate the good practice in their house as well.

Table 53. Overview of actions, timeframe and stakeholders for Activity 6 in Slovenia

No.	Action	Timeframe	Stakeholders
1.	Identification of the end-users who have already replaced their heating system and will be presented in the next festival OHS	April 2021	LWG members, OHS, end users
2.	Promotion	April – May 2021	LWG members, OHS, end users
3.	Event	May 2021	LWG members, OHS, end users

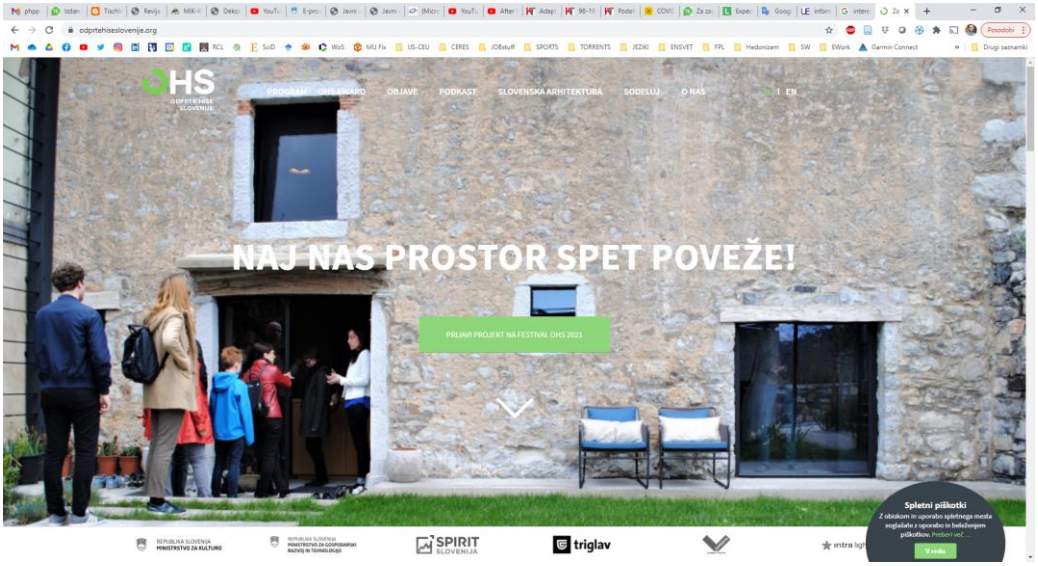


Figure 69. Open House Slovenia – entry point to the festival

Implementation barriers:

Due to unknown situation regarding Covid-19 the exact dates of Festival OHS 2021 are not known yet. As it stands, the festival is expected to take place in late May 2021.

3.8.7 Activity 7 – Organization of webinars on the usage of REPLACE tools

Through Covid-19 times webinar offer an efficient way to reaching out to multiple stakeholders in an interactive and engaging manner. In the scope of REPLACE activities in Slovenia, minimum of three webinars will be organized for different types of target groups. The first webinar, targeting independent energy advisors, will serve as an opportunity to present the REPLACE activities and campaigns. Due to unavailability of the "REPLACE your heating system calculator" until April 2021, when Action 8 starts, one more webinar will be organized for this target group, where the calculator will be presented for actual use. The second webinar will took place before the end of 2021.

The third webinar, organized in second half of 2021, aims to present the "REPLACE you Heating System Calculator" to end-users. A poll, organized before the webinar, is used to obtain information on the types of examples that the webinar attendees are most interested in. The presentation of the tool is during the second webinar is based on this input, with a strong focus of practical use of the tool. Through an interactive discussion, the webinar should offer the attendees a hands-on experience of using the tool.

Another webinar will potentially be organized for two target groups, installers and municipality representatives as well as policy makers, in the first half of 2022.

Table 54: Overview of the Activity 7 implementation plan in Slovenia (status Jan 2021)

No.	Action	Timeframe	Stakeholders
1.	Webinar 1 for energy advisors	March 2021	Energy advisors
2.	Webinar 2 for energy advisors	End of 2021	Energy advisors
3.	Webinar for end users	End of 2021	End users
4.	Webinar for installers	First half of 2022	Installers
5.	Webinar for municipality representatives	First half of 2022	Municipalities

3.8.8 Activity 8 – Joint purchase of RHC equipment

The collective action of joint purchase of RHC equipment aims to further boost the replacement rates of old and inefficient heating systems. JSI will set up a unique webpage for this campaign that is going to be a focal and entry point to Action 8. The core idea is to educate households (why do they need to replace boilers, what are the benefits) through REPLACE tools before they take upon the actual measure implementation. At the end of the process they will receive a voucher from a local manufacturer of the heating systems, that aims to additionally motivate investors to implement the replacement. Voucher guarantees that certain binding works for implementation will be executed free of charge.

Activity 8 is a campaign that will last for 6-8 months and will be carried out once or twice in the scope of REPLACE project. The first campaign is scheduled to begin in April 2021. The local manufacturer that is going to participate as a system provider is company Kronoterm, which is one the most recognizable manufacturer of heat pumps in Slovenia, thus will offer the latest, highly efficient heat

pump. Should the approach prove successful, the second campaign will be carried out in 2022, presumably with a local manufacturer of biomass boilers.

Based on expected impact of the campaign, local manufacturer of the heating system will offer a certain discount in the form of free execution of some installation works, that are binding anyway. Activity 8 is considered as a joint purchase of the heating systems, since the campaign is projected to have a major impact and will attract many targeted households. This motivates the local manufacturer of the heating systems to offer this voucher. On another hand, households will be additionally motivated by the voucher since it offers them an extra financial incentive, besides national subsidy.

Activity 8 covers several steps, from investors that need to be informed of REPLACE campaign to actual implementation of the measure and monitoring the results.

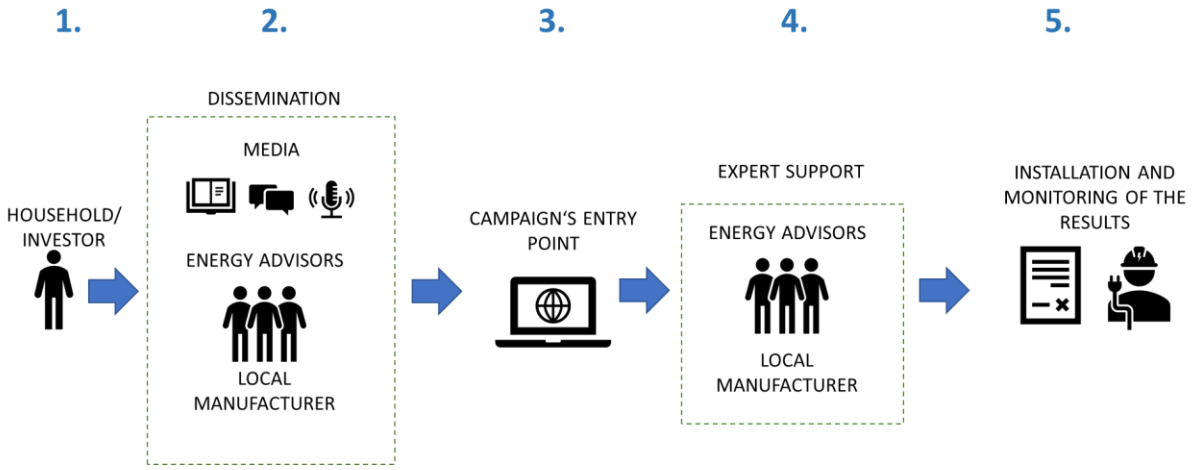


Figure 70: Action 8 course of implementation: from informing the investor to monitoring of the results

1. INVESTOR

Investors/households have an existing inefficient boiler and are interested to replace it with new heating system. They seek to find additional information before taking upon the implementation measure.

2. DISSEMINATION

The potential investor is informed about the campaign through its main promoters:

- Energy advisors: advisors will be informed about the campaign and will pass the information on to their clients. A core group of those will be selected that will be contact points for households and will be able to offer holistic presentation of the REPLACE education process, campaign and will help them with the application or online calculator.
- media: information via websites (JSI, relevant web portals (eg Finance-energy, Delo & Dom, etc.), advertisements, etc.
- Eco fund
- - local manufacturer involved in Action 8: website, own resources

3. ENTRY POINT

Entry point of Activity 8 is going to be a subpage on JSI-EEC portal. The content will include:

- basic information about the campaign

- basic information on the H2020 REPLACE project
- links to the REPLACE information material (e.g. leaflet),
- presentation of the significance of heating system replacement and relevant indicators in decision-making process (economic, environmental and other benefits for the household)
- presentation and link to the REPLACE online calculator,
- information on professional support,
- presentation of the selected product and invitation to apply for the campaign.

At the end of the entire process, when the user (households) will go through the entire educational process, they will receive a special voucher. The later offers them that certain binding works for implementation will be executed free of charge by the local manufacturer of the heating systems.

4. PROFESSIONAL SUPPORT

Households can turn to professional support through all promoters.

5. INSTALLATION AND MONITORING OF THE RESULTS

Investors that are going to actually replace their heating systems, informed and motivated through Activity 8 campaign, will be noted in order to monitor the actual effect of the campaign.

Table 55: Overview of the Activity 8 implementation plan in Slovenia (status Jan 2021)

No.	Action	Timeframe	Stakeholders
1.	Setting up the concept of the campaign.	March 2021	• Local manufacturer • JSI
2.	Setting up the website for action 8 - campaign's entry point	April 2021	JSI
3.	Start of the campaign	April-May 2021	• Local manufacturer • JSI
4.	Campaign: promotion, collection of application, implementation	End of 2021	• Local manufacturer • JSI
5.	Campaign repeat?	April - October 2022	• Local manufacturer • JSI

Implementation barriers:

Indefinite date of a new Eco fund's public call for subsidies. This may coincide with the presume date of setting up the new platform on Sustainable energy portal. E.g. a new call can be issued even before the new web platform will be even online on Sustainable energy portal.

Barrier that will need to be addressed is the "REPLACE your heating system calculator". The idea is to educate household with the help od the calculator as well. Campaign is scheduled to begin in April 2021, but the calculator won't be available for public use before June 2021.

3.8.9 Activity 9 – Collective action with Eco fund and Borzen – development of "fuel oil phase out" offensive

The collective action with Eco fund and Borzen is a joint undertaking in order to raise awareness about importance and benefits of boiler replacement through **holistic education process** of each households that aims to replace their old, inefficient heating system.

Borzen is responsible for the implementation of public utility service relating to the organisation of the electricity market and many other important activities in the Slovenian energy field connected with stimulating the use of renewable sources and the efficient use of energy. As a public utility service provider, Borzen also carries out tasks related to informing and raising awareness about the efficient use of energy and renewable energy sources. To that end, Borzen designed the platform *Trajnostna enegija* (eng. Sustainable energy, http://www.trajnostnaenergija.si/).

The main purpose of Eco Fund, Slovenian Environmental Public Fund (Eco Fund), is to promote development in the field of environmental protection by offering financial incentives such as soft loans and grants for different environmental investment projects. In order to reach its goals, Eco Fund prepares and carries out yearly plans which serve as a basis for the publishment of public calls. Should a households receive a grant or a soft loan, the eligible person must send an application for a grant and/or soft loan. Eco Fund also runs organization and financing of free energy advisory network offering free expert advice on how to improve energy efficiency to households.

The main idea of this action is to set up a systematic education of households and raising awareness among experts through a web platform and is going to ensure afterlife of REPLACE project results.

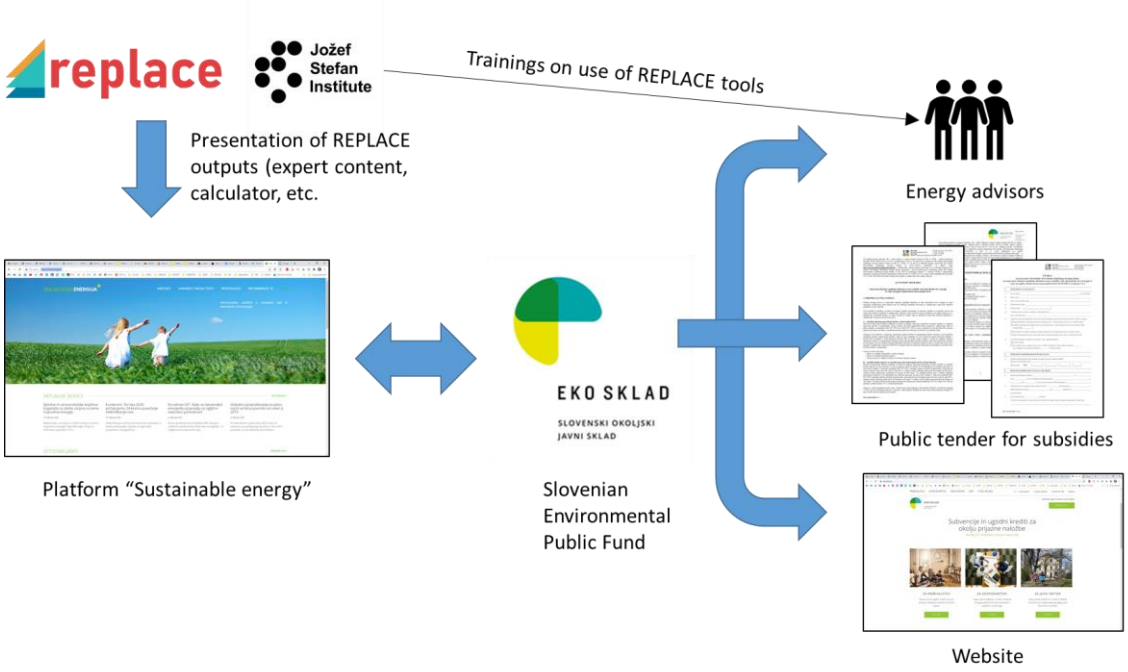


Figure 71: The information workflow in Activity 9

Borzen will in the scope of Activity 9 set up a separate subpage on Sustainable energy platform. The subpage is intended to present:

- the "fuel oil phase out" campaign
- inform users (households, experts) on importance of heating system replacement
- present a "walk-through" guidance on how to proceed from idea to implementation, where to find free expert support, how and by which indicators different heating systems should be compared against each other, etc.
- REPLACE output: heating system calculator, matrix, leaflets, etc.
- REPLACE ongoing campaigns.

Eco fund publishes calls for subsidies once per 2-3 years. In 2021, a new public call is expected and the call will consist a content on heating systems replacement related issues and direct link to a platform Sustainable energy, where REPLACE results, trainings and campaigns will be presented. This ensures that each household that is planning to replace their heating system, will be aware of the REPLACE campaign and will be informed about 1) educational process of heating system replacement and 2) REPLACE project, its results and tools.

Furthermore, Eco fund will promote the new platform on their website. This expands the possible reach of interested people. Since Eco fund runs the energy advisory network, JSI will in cooperation with Eco fund organize an education seminar for advisors, where they will be informed about REPLACE tools and campaigns.

Table 56: Overview of the Activity 9 implementation plan in Slovenia (status Jan 2021)

No.	Action	Timeframe	Stakeholders
1.	Signing a Letter of intent for cooperation between Borzen and JSI	March 2021	• Borzen • JSI
2.	JSI provides content to Borzen for "REPLACE platform"	March 2021	JSI
3.	Borzen sets up the "REPLACE platform" on Sustainable energy portal	May 2021	Borzen
4.	JSI executes training seminars for energy advisors on REPLACE project, platform, tools and campaigns	April 2021	• JSI • Energy advisors
5.	Eco fund issues a new public call with direct link to REPLACE platform on Sustainable energy portal	2021	Eco fund
6.	Eco fund promotes REPLACE platform on their website	2021	Eco fund

Implementation barriers:

Indefinite date of a new Eco fund's public call for subsidies. This may coincide with the presume date of setting up the new platform on Sustainable energy portal. E.g. a new call can be issued even before the new web platform will be even online on Sustainable energy portal.

3.8.10 Media cooperation strategy

The objective is to communicate and disseminate all project results at local and national level in order to enhance the impact achieved by the REPLACE project by supporting the use of regional renewable energy sources and equipment produced in Slovenia and in EU. Selected actions will be accompanied by a tailor-made local media cooperation strategy. Through an intensive media campaign during the Project realisation, households will be introduced to all activities and encouraged to participate in them. The goal is to inform them, raise awareness, and receive feedback.

The use of communication media will concentrate on reaching a wide audience, municipalities, cities, consumers, equipment manufacturers and experts.

Current Twitter channels owned by Borzen will be used to actively address and engage an online community by posting regular updates of the status of the campaigns. JSI will use existing networks to inform the energy community about the project like newsletters, project websites and publications in professional magazines/specialist journals. A project website will represent the main access point to key information, including activities, events, publications, project news about performed webinars.

Furthermore, a separate webpage for Action 8 (joint purchase of RHC equipment) will be designed. This will be an entry point to the campaign, where use will go trough step-by-step education process of heating system replacement and at the end, will be able to replace the heating system with an additional financial incentive.

Figure 72 presents the timeline for media related activities that will support planned campaigns from the promotion aspect. An essential role is presented by LWG members, who are going to offer access to wider target households through their channels.

For reasons of clarity only the categories and the months in which the activities are scheduled are shown below. The detailed table can be found in Annex VII at the end of the document.

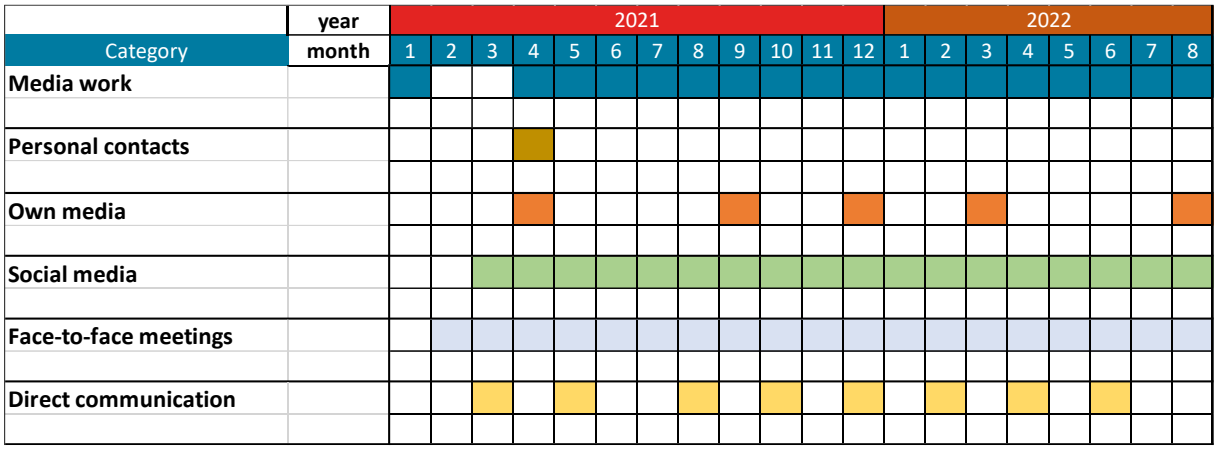


Figure 72: Simplified timeframe of media activities for activities 1-9 in Slovenia

3.9 Spain

For the region of Castilla y León, in Spain, the strategic orientation of the Replace boiler replacement campaign was based on the conclusions gained from several actions, as the Castilla y León Bioenergy Regional Plan and its updates, the conclusions from the workshop developed in the first project meeting in Austria, bilateral discussions with key stakeholders and conclusions from previuos Replace project tasks (framework conditions reports, stakeholders mindset survey and instruments developed).

Once the draft information was prepared for the action plan it was discussed with the Local Working Group in a specific workshop, to both agree on the aim of the specific campaign activities and the level of cooperation expected from them.

The campaign activities include measures involving public authorities (regional and local), consumer organizations, intermediaries, biomass associations, ESCOs, District Heating promoters, associations from these actors and other groups involved with biomass.

This table shows a summary about the implementation of the chose activities that will take place in the Region of Castilla y León in Spain. It also shows a range for the timeframe they will be developed and be implemented, plus the stakeholders involved in those activities:

Table 57: Overview on Action Plan activities in Castilla y Léon

Nº Activity	Activity	Timeframe	Stakeholders
1 - 1	Boilers labelling	Q2 2021 – Q4 2022	Consumers, installers, maintainers, boiler suppliers, ESCOs, DH promoters, associations
2 - 2	Six techno-economic feasibility studies	Q2 2021 – Q2 2022	Consumers, regional and local energy agencies, associations, ESCOs, DH promoters
3 - 3	Information hubs	Q3 2021 – Q3 2022	Consumers, installers, maintainers, regional and local energy agencies, ESCOs, DH promoters
4 - 4	Workshop for professionals	Q2 2021 – Q4 2021	Installers, maintainers, ESCOs, DH promoters, associations, energy agencies, suppliers, other public and private
5 - 6	Renewable label for homes	Q2 2021 – Q4 2022	Consumers, installers, maintainers, boiler suppliers, ESCOs, DH promoters, architects, engineers
6 - 7	Open house events / virtual	Q3 2021 – Q4 2022	Consumers, installers, maintainers, ESCOs, DH promoters, biomass retailers.
7 - 10	Expobiomasa showcase	Q2 2021 – Q1 2022	Consumers, manufacturers, installers, biomass retailers, associations
8 - 13	Low-cost measures through collaborative actions	Q4 2021 – Q4 2022	Consumers, Consumer aggregators (building managers, local energy agencies, municipalities), intallers

3.9.1 Activity 1 - Labelling boilers

The first action chosen is the labelling of boilers. The idea would be to establish a set of criteria to assess the boiler system efficiency, the installation quality, the information provided by the installer at the time of installation to the user and some other relevant issues and, considering the feedback from the user, an energy label would be provided.

The energy label assigned would be available to be put in the boiler (i.e. sticker), to make visible the level of commitment from the end user or consumer, and in the installer website, to show the support of the installer to this action.

The process would be:

1- EREN, with support from the national stakeholders, establishes a set of criteria with clear definitions.
2- The criteria are included in a form that, once they are completed by the end user or consumer, provide a label to the heating system installation, considering both the sustainability of the system and the work completed by the installer.
3- The energy label would be assigned by EREN, once the end user – directly or through their installer - sends the completed form.

There could be several labels (i.e. bronce, silver, gold, platinum or just a distinctive “green” if the minimum criteria are fulfilled)

Thus, the boiler owners would know how sustainable the boiler and its installation are at their home or building, and could ask the installer about how to reach a better energy efficiency or label.

The action would include training actions for the installers and maintainers, as well as specific marketing campaigns to the target groups (installers, maintainers, end users, consumers). Also, feedback interviews to the intallers and end users to find out the degree of satisfaction with the action, that will finish with a capitalization report that summarizes the technical, economic, etc. lessons learnt.

Figure 73: Ratings for boiler labels

Table 58: The preliminary timeframe for Activity 1

Concept	1st Q 2021	2nd Q 2021	3th Q 2021	4th Q 2021	1st Q 2022	2nd Q 2022	3th Q 2022	4th Q 2022
Definition of labels and forms. Guideline preparation.		X						
Installation and maintenance personnel training		X	X					
Marketing to installers, maintainers, end users or consumers			X	X		X		
Boiler's owners feedback and labels produced				X	X	X	X	X
Feedback interviews						X		X
Internal capitalization report								X

The barriers we find for this activity are mainly related to reaching a wide group of installers and attract them to develop this extra action when installing their boilers. It is unclear that, even with a good marketing of the activity, their participation will be assured. A good explanation about the project and its benefits for them and the end users should incline them to take part in it.

3.9.2 Activity 2 - Six techno-economic feasibility studies

Six techno-economic feasibility studies (regarding single object supply) will be carried out for free for end consumers by utilizing the T4.5 tool that, depending on the output provided by the tool, might be complemented by other tools and knowhow.

AEA supplies a questionnaire for gathering the data required for the assessments and that would be input in the tool to obatin the feasibility study result.

The energy agency (EREN) will make a selection of the six cases to be analyzed so that these are sufficiently representative and their results allow high replicability. This sub-task could include a face-to-face visit if possible, but considering the current restrictions in terms of mobility the could be developed without this visit.

Potential studies might come from national working group stakeholders (Calordom, Barbero, REBI, Gebio, …) or from those arriving to the information hubs. There is also the possibility to announce a free study to the oldest heating system in the region, or to the segment of coal boilers, so the project gains popularity and reaches a wider audience.

A concise standardized report (model case by AEA) will show the results of the investigations in national languages, in this case in Spanish. Part of the reports will be a two page summary, translated into English too.

Publishing of results depends on written agreement of owners of plants assessed. Projects realized during campaigns life may become “show cases”, upon agreement of the building owners(s).

Alternatively, EREN could opt for a techno-economical assessment a biomass micro grid (where a few existing buildings are connected) instead of one home, or even a wider system (instead of the six homes) as the establishment of a biomass / waste district heating system (a heat supplied existing settlement) based on a tool developed by AEA for the H2020 project Bioenergy4Business.

AEA will train partners in utilizing that tool by a Webinar in case it is needed.

The action will incorporate a capitalization report that summarizes the technical, economic, etc. lessons learnt.

Table 59: The preliminary timeframe for Activity 2

Concept	1st Q 2021	2nd Q 2021	3th Q 2021	4th Q 2021	1st Q 2022	2nd Q 2022	3th Q 2022	4th Q 2022
Tool and questionnaire ready		X						
Six case selections (or DH)			X	X				
Training (if needed)			X	X				
Site visits (if needed) and report				X	X			
Internal capitalization report					X	X		

Potential barriers for this action would include the agreement from the customers, end users or DH promoters to allow the use of their data for this purpose and the information that could be published. If happening, it would be needed to find other study cases. This will set back the timeframe which should not be a problem since it is one of the actions that will take place earlier, depending on the completion of the tool.

3.9.3 Activity 3 - Information hubs

Implementation of several information hubs in places where consumers and end users can get aware about the substitution of their old heating systems by more sustainable ones and obtain clear information on how to carry out the substitution.

The information hubs will be located in:

a) The premises of EREN and other regional dependencies, as this is a place where many consumers visit to obtain information on sustainable heating systems.

b) The premises of local public institutions (as Local Energy Agencies), renewable associations, biomass system promoters (as those promoting DHs) and other locations with great potential to expand this knowledge.
c) Relevant national or regional fairs that consumers attend to obtain information, as Expobiomasa, which is organized in Castilla y León.
d) In shopping centres or big markets to approach the maximum number of people.

Flyers will be prepared to be delivered and included in the websites informing about benefits of the biomass systems, what biomass systems are more efficient, investment needs, financing and subsidies, REPLACE project, types of biomass, where to find regional installers and mantainers, as well as the associated environmental benefits.

At the information hub, professionals prepared with REPLACE background will answer all questions regarding sustainable heating system topics, offering the consumers simple, concrete and useful information about regulations, administrative procedures, financial possibilities, consumer's rights as well as the local working groups and other REPLACE activities.

The action will include information or training actions for the hubs personnel and some feedback interviews to find out the degree of user satisfaction with the action that will finish with a capitalization report that summarizes the technical, economic, etc. lessons learnt.

Potential locations include Expobiomasa, which is a great biomass fair that is held every two years for the general public where a meeting could be arranged if the situation allows it. Other potential locations include "Rio Shopping" or "Espacio León" commercial centres, EREN´s headquarters and other malls where customers are usually more interested in the project aims.

Figure 74: Example of an information hub

Table 60: The preliminary timeframe for the information hubs

Concept	1st Q 2021	2nd Q 2021	3th Q 2021	4th Q 2021	1st Q 2022	2nd Q 2022	3th Q 2022	4th Q 2022
Elaboration of the information			X					
Information hubs selection			X					
Hub personnel training			X					
Hub presence in shopping centers				X	X	X	X	
Feedback interviews					X		X	
Internal capitalization report							X	

The barrier that could appear in this action is getting confirmation from the external shopping centers to set up a stand or hub in their buildings or outside. In case it is not possible due to pandemic situation or other difficulties, alternative places would be selected. Also, we cannot be sure of the amount of people that will be interested in talking to the staff at the hub.

3.9.4 Activity 4 - Workshop for professionals

A specific workshop for professionals will be organized at the Expobiomasa fair in Valladolid that will take place the 21st, 22nd, 23rd of September 2021.

This fair is open from 9:30 to 18:30 and the attendees are typically professionals and consumers (specific days for each group) that work in the space heating systems area or similar projects linked to biomass or consumers wishing to learn on biomass systems to install them in their homes.

The idea is to expand the REPLACE campaign to proffesionals that work in the sector so they can extract ideas and take them to their clients and to consumers to aware them on the most suitable heating systems for their homes.

Flyers and information will be given out and labeling (action 1) will be explained as well. The provided information will be focused for a) the general public and b) for professionals in the biomass sector.

The website where this event is coordinated can be found here.

Figure 75: Expo Biomass notice and dates

Table 61: The preliminary timeframe for the workshops

Concept	1st Q 2021	2nd Q 2021	3th Q 2021	4th Q 2021	1st Q 2022	2nd Q 2022	3th Q 2022	4th Q 2022
Elaboration of the information		X						
hub personnel training		X						
Hub presence in Expo Biomasa 2021			X					
Feedback interviews			X					
Internal capitalization report				X				

The potential barriers are those related to the pandemic situation in the coming moths. Even then, the fair might still take place with heavier security measures and restrictions. If, for various reasons, the fair is not open due to restrictions regarding the virus, the workshop can be replaced by an online webinar.

3.9.5 Activity 5- Renewable labels for homes

This activity is complementary to the activity 1 (labelling of boilers). The idea behind is to provide a second label to be shown in a visible place of the home, presenting that house or building as “renewable” to the neighbourghs and visitors, attracting them to install a biomass system as well, or other renewable complementary systems.

Thus, complementing the criteria to assess the boiler system, some (few) other criteria will be assessed as the proportion of the energy requiered in the building which is supplied from renewable systems.

The process would be:

1- EREN, with support from the national stakeholders, establishes a set of criteria with clear definitions.
2- The criteria are established in a form that, once they are completed by the end user or consumer, a label is provided to the building renewable installation(s), considering both the percentage of renewables and the work completed by the installer.
3- The renewable label would be assigned by EREN, once the end user – directly or through their installer - sends the completed form.

There could be several labels (i.e. bronce, silver, gold, platinum or just a distinctive “green” if the minimum criteria are fulfilled).

Thus, the householders would know how renewable is the energy they are using in their homes or building, and could ask their installer about how to reach a better renewable label for their homes.

The action would include training actions for the installers and maintainers, as well as specific marketing campaigns to the target groups (installers, maintainers, end users, consumers). Also, feedback interviews to the intallers and end users to find out the degree satisfaction with the action, that will finish with a capitalization report that summarizes the technical, economic, etc. lessons learnt.

This shall motivate other consumers, such as neighbours or friends, to ask about the label and how it was obtained, and eventually switching themselves to a renewable heating system too.

The labels will start being given out by the time they arrive to the country from the partner´s country they are being manufactured on, around the middle of 2021.

Additionally, the possibility to reach an agreement with the local suppliers of biofuels will be studied , as well as with the installation and maintenance companies, so that the owners of the heating systems that receive this label obtain discounts in biofuels, equipment or maintenance service prices.

The action will incorporate training actions for personnel that speak with the heating systems owners, as well as specific advertising campaigns and some feedback interviews to find out the degree of renewable companies satisfaction with the action in terms of better sales that will finish with a capitalization report that summarizes the technical, economic, etc. lessons learnt.

Figure 76: Example for home labels

Table 62: The preliminary timeframe for activity 5

Concept	1st Q 2021	2nd Q 2021	3th Q 2021	4th Q 2021	1st Q 2022	2nd Q 2022	3th Q 2022	4th Q 2022
Elaboration of the information		X						
visit personnel training		X						
Advertising campaign			X					
Heating systems owners visits				X	X	X		
Feedback interviews							X	
Internal capitalization report								X

The main barrier for this action relates to the usefullness of the label itself. We can never be certain that even when final consumers achieve this label they will be proud of it or that the discounts offered by the suppliers of biofuels will be significant enough.

3.9.6 Activity 6 - "Open house" events / virtual

Showing best practices for renewable heating and cooling systems as "*open houses*" in Castilla y León, with participation of consumers, installers, heating system suppliers, biomass suppliers and local working group members.

An "*open house*" best practice must have a renewable heating system installed for space heating or hot sanitary water production, and a sheet with the key characteristics of that heating system.

The original idea of walking around the best practices in organized groups will be probably substituted – due to pandemic – by virtual tours prepared by EREN, national stakeholders, installers and users, by means of recorded videos, broading the potential audience, so the people interested do not miss out on this chance and have the opportunity to participate from home.

All videos belonging to the campaign will pass a "quality check" by EREN and Escan, to assure that the information provided is reliable and the quality of the videos are good enough.

Potential open houses locations and providers are: community installations by BIOENERGY and district heating installations by REBI in Soria, Olvega or Guadalajara.

Additionally, the possibility to reach an agreement with the local suppliers of biofuels will be studied, as well as the installation and maintenance companies, so that the owners of "open houses" obtain discounts in biofuels, equipment or maintenance service prices.

The action will incorporate training actions for the "open houses" owners, as well as specific advertising campaigns and some feedback interviews to find out the degree of renewable companies

satisfaction with the action in terms of better sales that will finish with a capitalization report that summarizes the technical, economic, etc. lessons learnt.

Table 63: The preliminary timeframe for the open house events

Concept	1st Q 2021	2nd Q 2021	3th Q 2021	4th Q 2021	1st Q 2022	2nd Q 2022	3th Q 2022	4th Q 2022
Elaboration of the information			X	X				
Advertising campaign / videos issue				X				
"open houses" visits / videos promot					X	X	X	X
Feedback interviews								X
Internal capitalization report								X

Figure 77: Open house (virtual) tour

The potential barriers for the open house activity are already covered as stated above. In the worst scenario, videos of the installations will be recorded in order to show the characteristics, benefits, parts, equipment and others to be seen from the safety of home.

3.9.7 Activity 7 - Expobiomasa showcase

Expobiomasa is a fair organized by the national biomass association with a large exhibition of biomass heating systems, biomass production systems and any biomass related equipment available in the market nowadays.

It is organized by AVEBIOM, the National Spanish Biomass association, established in 2004 in order to promote the development of the bioenergy sector in Spain. AVEBIOM is an active member of the REPLACE Local Working Group.

The exhibition, which has been supported by the Regional Government, is widely covered by media as the main biomass fair in the country.

Figure 78: Expobiomasa (source: Expobiomasa)

The activity includes the oganization of a group visit to learn about the biomass heating systems and biomass types. Feedback interviews to find out the degree of user satisfaction with the activity will finish with a capitalization report that summarizes the technical, economic, etc. lessons learnt.

Table 64: The preliminary timeframe for Expobiomasa showcase

Concept	1st Q 2021	2nd Q 2021	3th Q 2021	4th Q 2021	1st Q 2022	2nd Q 2022	3th Q 2022	4th Q 2022
Organisation		X	X					
Marketing		X	X					
Visits in groups			X					
Feedback interviews				X				
Internal capitalization report					X			

A possible barrier is that due to the pandemic there are restrictions to organize the fair or for group visits. REPLACE will adapt the number of people and timing to the situation at the moment of the Expobiomasa.

3.9.8 Activity 8 - Low cost measures through collaborative actions

A collective action is foreseen by using as integrators consumer aggregators, as local energy agencies, building administrators or buiding managers, as they are a reference for consumers when replacing their heating systems or purchasing products related to their homes.

The basic idea is to aggregate consumers interest in purchasing biomass heating systems and aggregate biomass heating system purchases by means of building administrators and building managers.

The legal form of building administrators simplify the formal organizational aspects and they have good knowledge of the building regulation and norms.

The specific actions for this collaboration would be the following:

- Inform building administrators on the potential for old heating systems replacement by new biomass systems.
- Support them with technical and economic information materials to be used to aggregate consumers towards REPLACE aims.
- Join selection (EREN and building administrators) of groups of consumers to attract them to substitute their old boilers.
- Provide information on qualified renewable companies in the area and other stakeholders needed to accelerate the installation of new biomass systems or purchase of biomass.
- Information on the main legal and regulatory aspects that affect renewable facilities.

The action will incorporate advertising campaigns and some feedback interviews to find out the degree of user satisfaction with the action that will finish with a capitalization report that summarizes the technical, economic, etc. lessons learnt.

Table 65: The preliminary timeframe for low cost measures

Concept	1st Q 2021	2nd Q 2021	3th Q 2021	4th Q 2021	1st Q 2022	2nd Q 2022	3th Q 2022	4th Q 2022
Web organisation and construction				X				
web personal training					X			
Advertising campaign					X	X		
Web maintenace					X	X	X	
Feedback interviews							X	
Internal capitalization report								X

3.9.9 Media cooperation strategy

A series of actions have been presented that are estimated to increase both the degree of visibility of renewable energy facilities and the satisfaction of their owners. With the actual degree of development of renewable energies and especially their costs, the main element to support this market has ceased to be the massive subsidy campaigns, which in some cases was beginning to generate the typical problems of the structurally subsidized sectors.

Now the efforts have to be directed to provide quality and “friendly” information, so that the potential renewable consumer perceives the acquisition and use of its installation as something "reliable, easy and… proudable". Similarly, in relation to the efficiency of the use of public money, it is observed that in many cases spending on advertising and communication generates much more money in direct investments than subsidies or exemplatory public installations.

The following figure shows the schedule for the planned media activities in Spain, starting in April 2021 and running until the end of the project. In Castilla y León, Spain, strategic activities to foster the transfer to sustainable heating systems are planned in the categories media work, personal contacts, own media, social media, face-to-face meetings, and direct communication.

For reasons of clarity only the categories and the months in which the activities are scheduled are shown below. The detailed overview can be found in Annex IV at the end of the document.

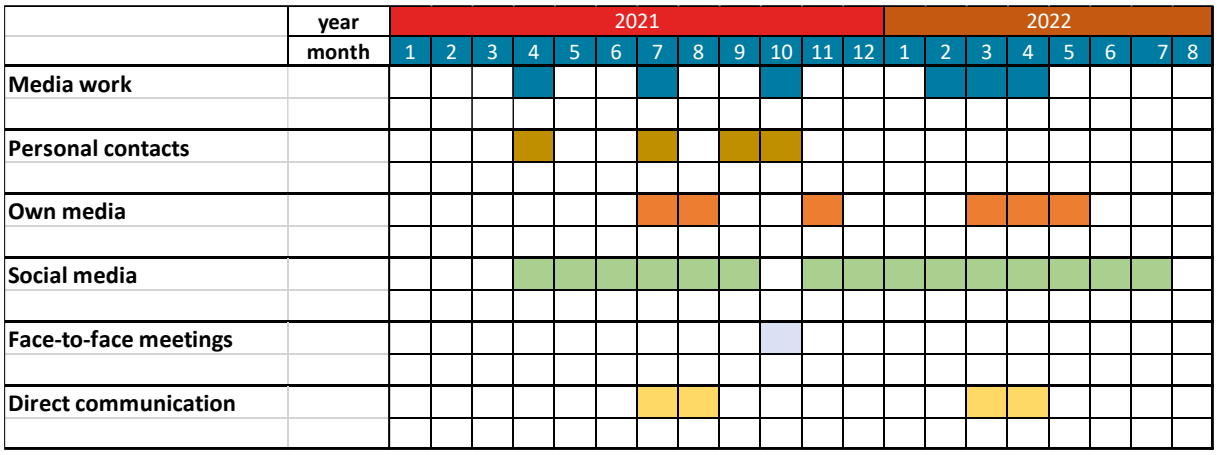


Figure 79: Simplified timeframe of media activities to support the activities in Castilla y León, Spain

3.10 Conclusions

Concluding, it can be stated that the elaboration of the Action Plans could be realized almost in all cases, as it was originally planned. In Austria, Bosnia-Herzegovina and North-West Croatia, due to the local framework conditions, another Action Plan approach was conducted. For example, the funding conditions in the Austrian target region Salzburg have developed in such a way, that three new activities were included in the set of eligible activities. In Bulgaria and Slovenia, all obligatory activities and even additional activities are planned.

The only activity that will be addressed by all REPLACE project partners is the realisation of different collective actions, ranging from collective pellet purchasing over promoting the idea of collective actions until a collectively organised village heating system and other actions.

Despite being thought of as a highly interesting system that could contribute a lot to sustainable energy goals, the innovative TRL6 multi-functional façade systems for thermal refurbishment of an existing residential building was not chosen by any project partner. Probably, the concept is still too new and the benefits of it need to be proven first under realistic conditions. During the REPLACE project, it will be nevertheless tried to make the concept more known.

Of course, the COVID-19 pandemic makes the organisation and implementation of many tasks and actions more difficult if not impossible at all. The REPLACE project partners have considered these conditions and sometimes use a two-pronged approach for their planning, depending on the current local situation. All partners make sure, that the activities bring noone at risk.

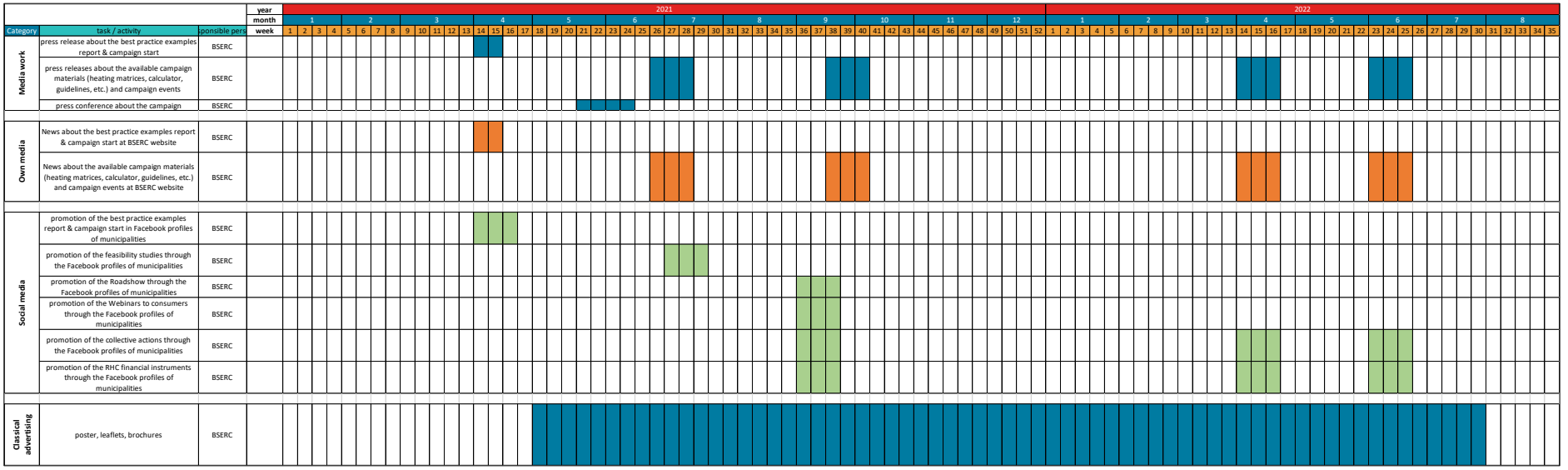
This report is (only) a plan. Time will show, whether all actions can be realized or not. The report about the implementation of the Action Plans will be published as REPLACE Deliverable 6.2 towards the end of the project. At this state however, the outlook can be rather optimistic. During the set-up, one could see that the REPLACE project partners have already established good networks, that have in common the same goal, fostering the change to more sustainable heating in Europe.

Figures

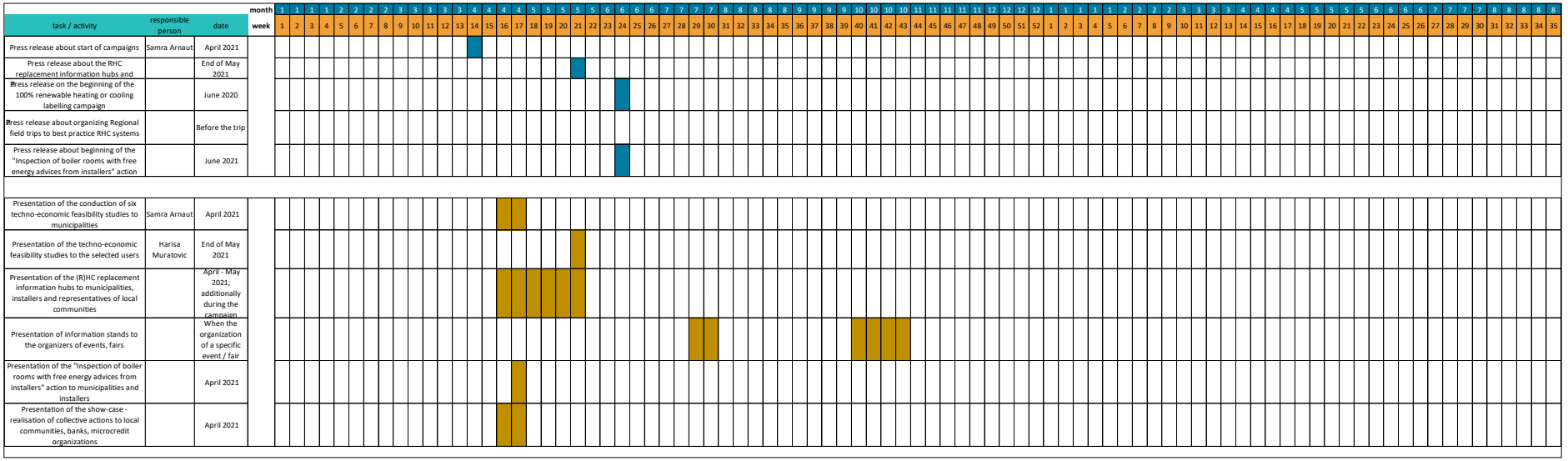
Tables

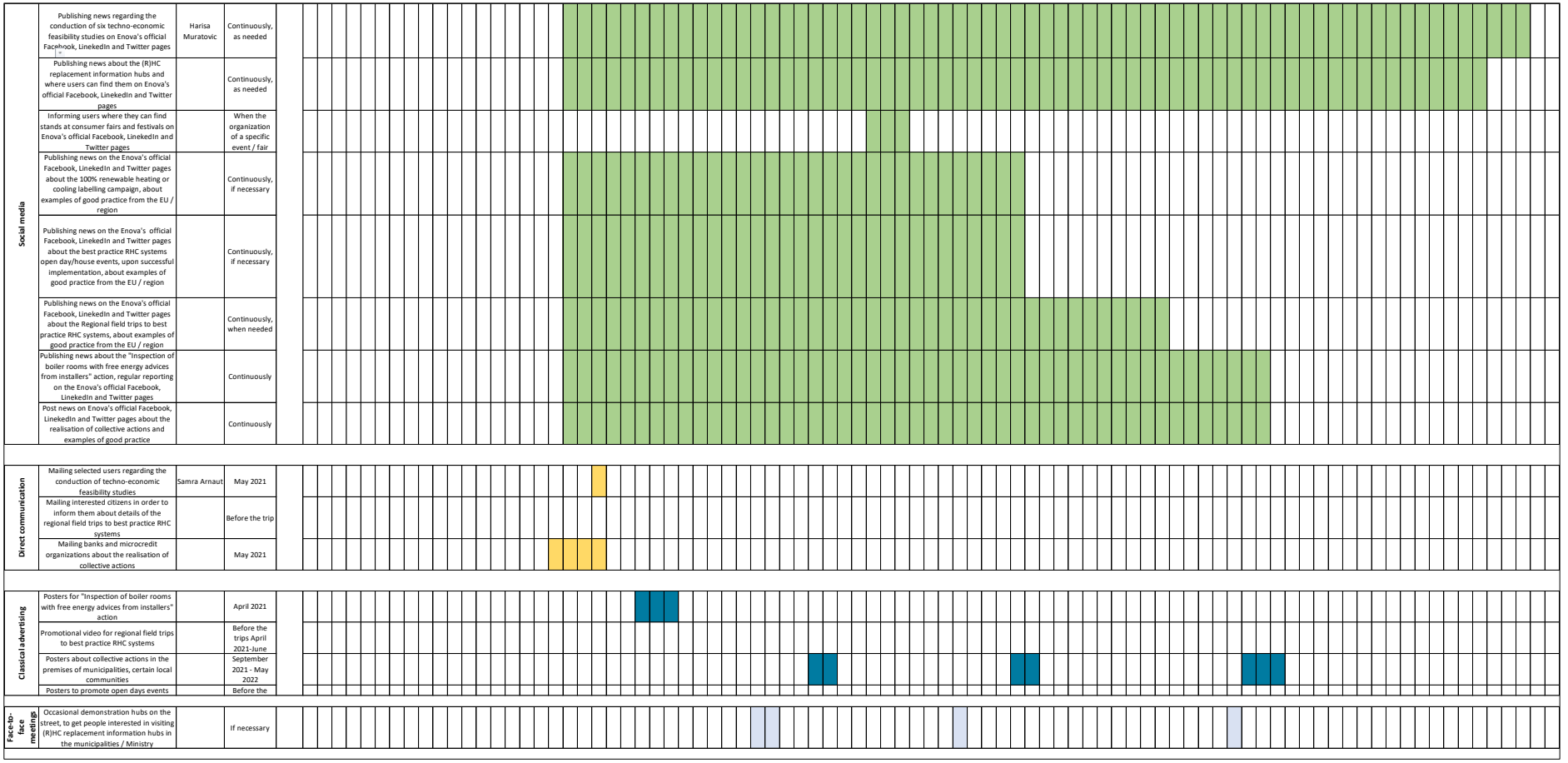
Annex

Annex I – Media cooperation strategy Bulgaria



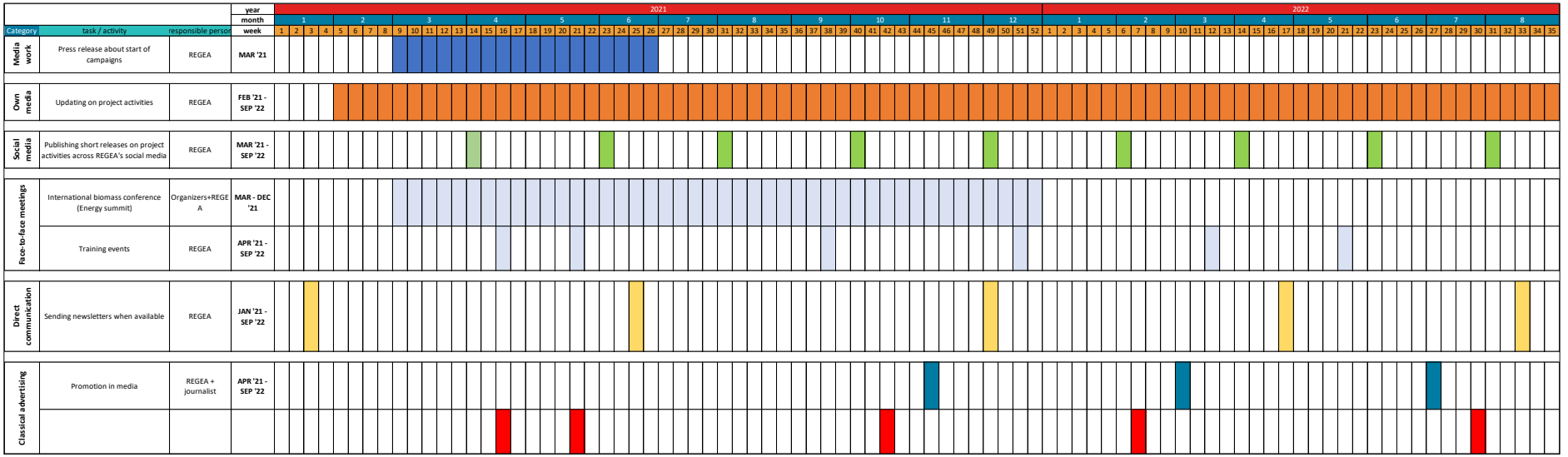
Annex II – Media cooperation strategy Sarajevo Canton



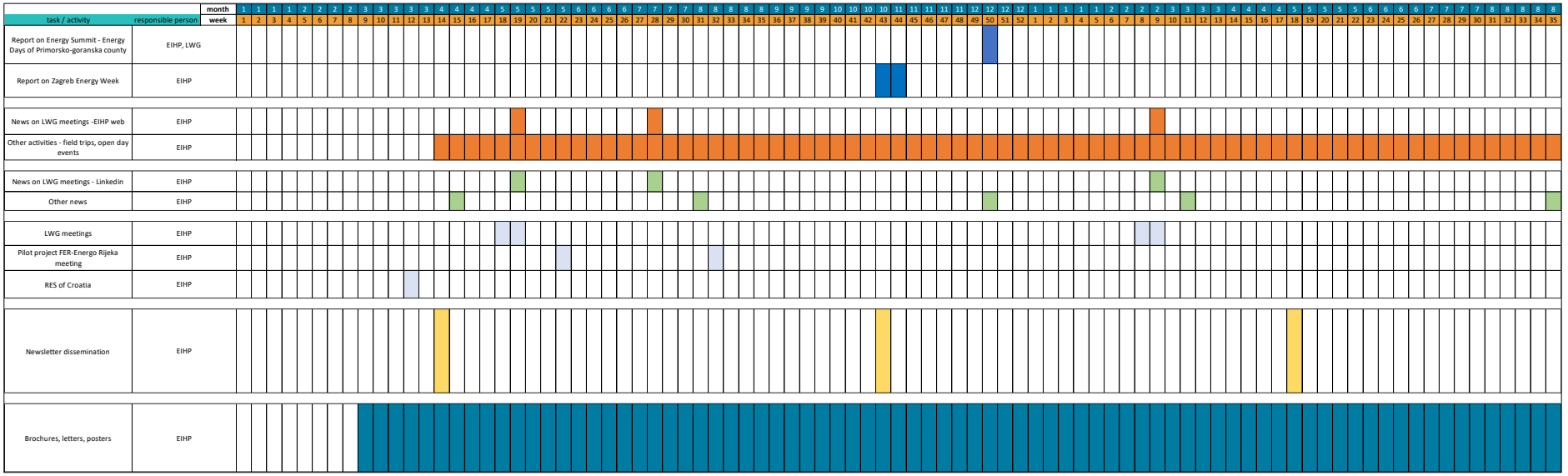


Social media	Publishing news regarding the conduction of six techno-economic feasibility studies on Enova's official Facebook, LinekedIn and Twitter pages	Harisa Muratovic	Continuously, as needed
	Publishing news about the (R)HC replacement information hubs and where users can find them on Enova's official Facebook, LinekedIn and Twitter pages		Continuously, as needed
	Informing users where they can find stands at consumer fairs and festivals on Enova's official Facebook, LinekedIn and Twitter pages		When the organization of a specific event / fair
	Publishing news on the Enova's official Facebook, LinekedIn and Twitter pages about the 100% renewable heating or cooling labelling campaign, about examples of good practice from the EU / region		Continuously, if necessary
	Publishing news on the Enova's official Facebook, LinekedIn and Twitter pages about the best practice RHC systems open day/house events, upon successful implementation, about examples of good practice from the EU / region		Continuously, if necessary
	Publishing news on the Enova's official Facebook, LinekedIn and Twitter pages about the Regional field trips to best practice RHC systems, about examples of good practice from the EU / region		Continuously, when needed
	Publishing news about the "Inspection of boiler rooms with free energy advices from installers" action, regular reporting on the Enova's official Facebook, LinekedIn and Twitter pages		Continuously
	Post news on Enova's official Facebook, LinekedIn and Twitter pages about the realisation of collective actions and examples of good practice		Continuously
Direct communication	Mailing selected users regarding the conduction of techno-economic feasibility studies	Samra Arnaut	May 2021
	Mailing interested citizens in order to inform them about details of the regional field trips to best practice RHC systems		Before the trip
	Mailing banks and microcredit organizations about the realisation of collective actions		May 2021
Classical advertising	Posters for "Inspection of boiler rooms with free energy advices from installers" action		April 2021
	Promotional video for regional field trips to best practice RHC systems		Before the trips April 2021-June
	Posters about collective actions in the premises of municipalities, certain local communities		September 2021 - May 2022
	Posters to promote open days events		Before the
Face-to-face meetings	Occasional demonstration hubs on the street, to get people interested in visiting (R)HC replacement information hubs in the municipalities / Ministry		If necessary

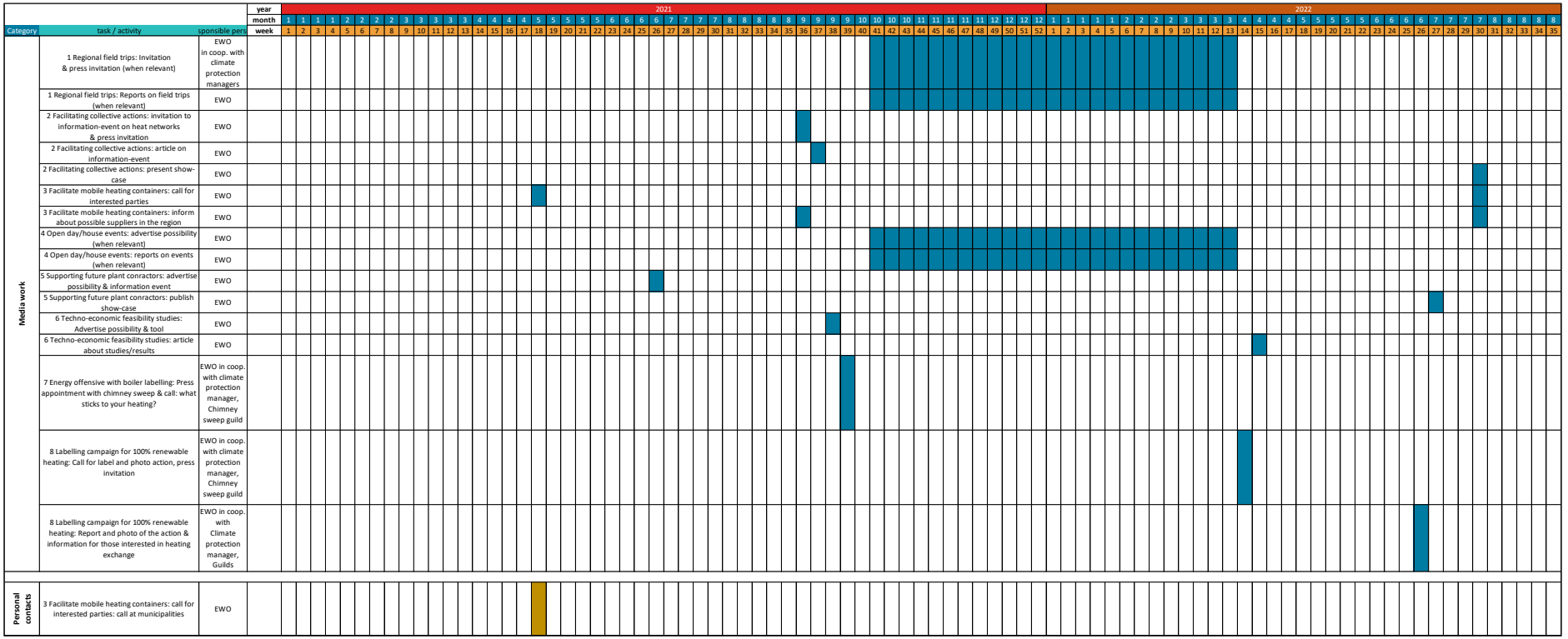
Annex III - Media cooperation strategy North-West Croatia

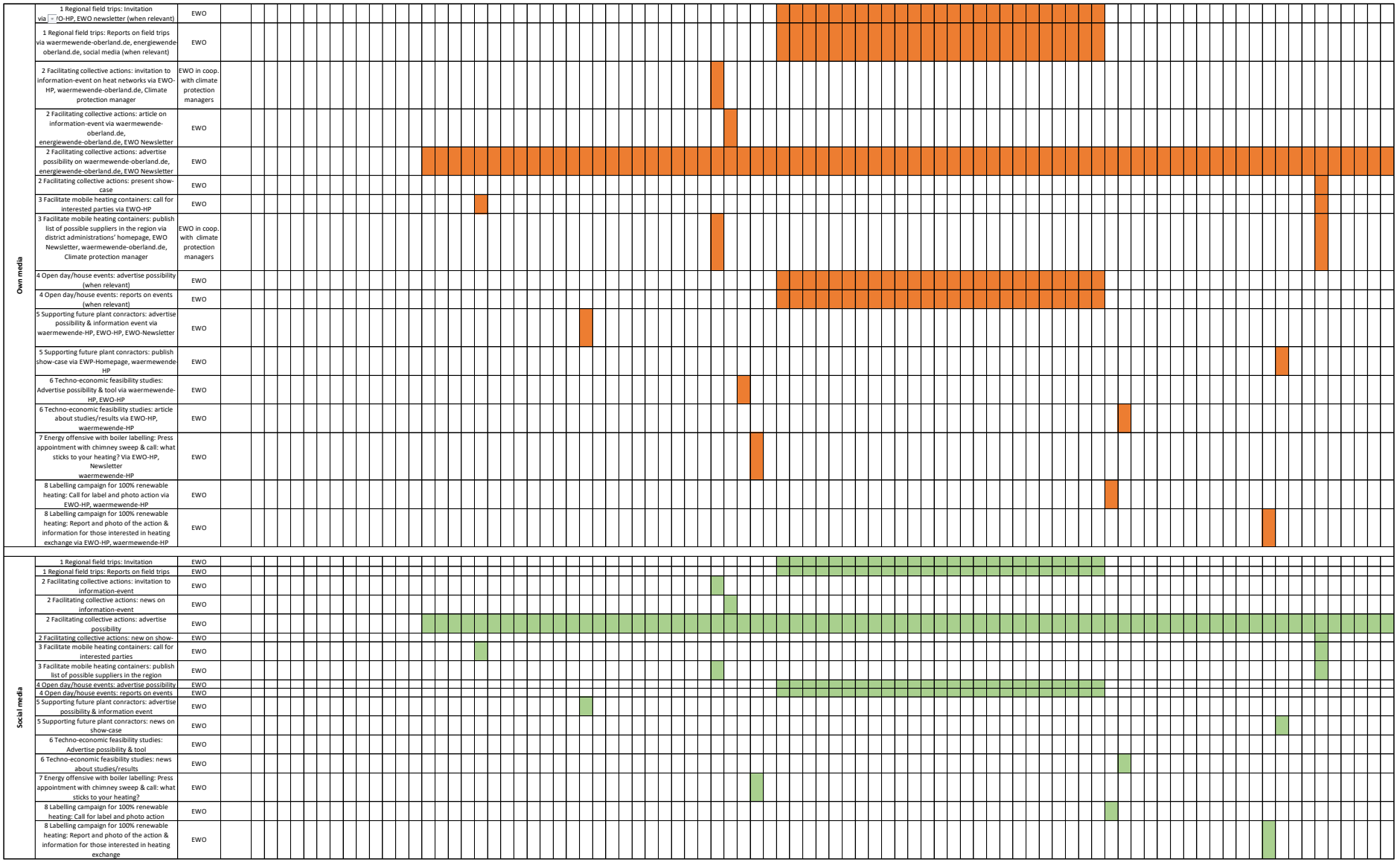


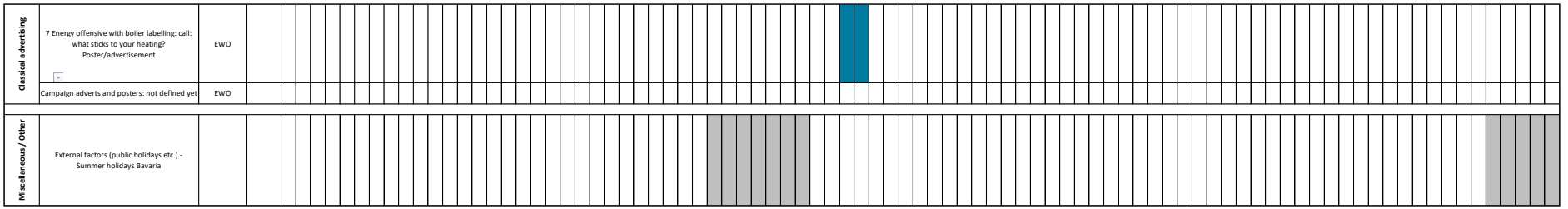
Annex IV - Media cooperation strategy Primorsko-goranska county



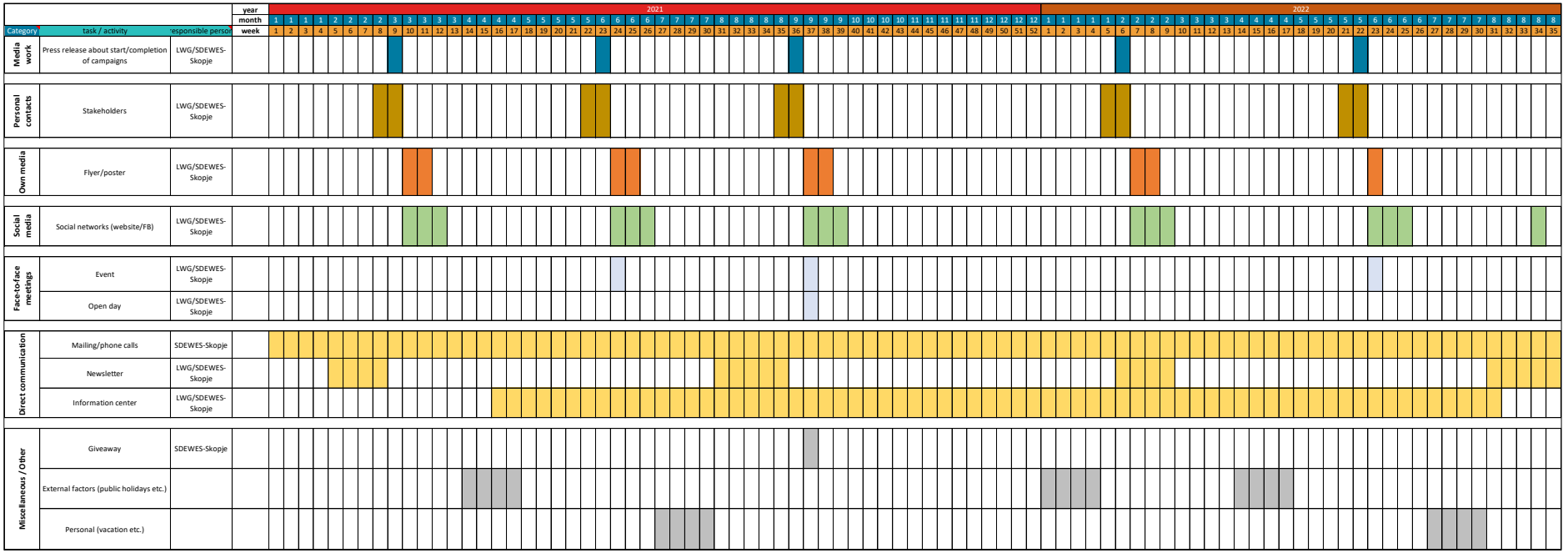
Annex V - Media cooperation strategy Bavarian Oberland



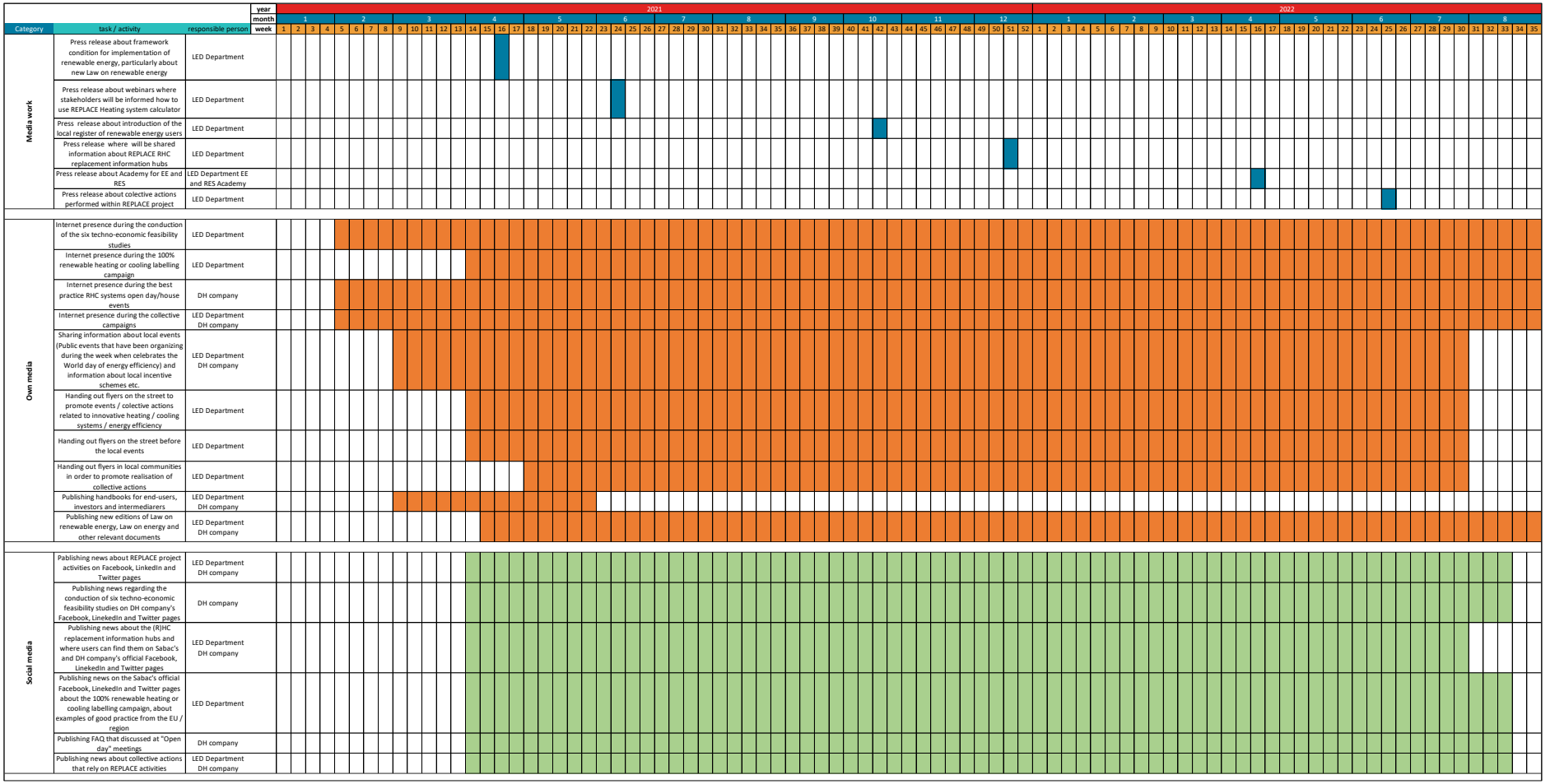

Own media
1 Regional field trips: Invitation via E-/O-HP, EWO newsletter (when relevant) EWO
1 Regional field trips: Reports on field trips via waermewende-oberland.de, energiewende-oberland.de, social media (when relevant) EWO
2 Facilitating collective actions: invitation to information-event on heat networks via EWO-HP, waermewende-oberland.de, Climate protection manager EWO in coop. with climate protection managers
2 Facilitating collective actions: article on information-event via waermewende-oberland.de, energiewende-oberland.de, EWO Newsletter EWO
2 Facilitating collective actions: advertise possibility on waermewende-oberland.de, energiewende-oberland.de, EWO Newsletter EWO
2 Facilitating collective actions: present show-case EWO
3 Facilitate mobile heating containers: call for interested parties via EWO-HP EWO
3 Facilitate mobile heating containers: publish list of possible suppliers in the region via district administrations' homepage, EWO Newsletter, waermewende-oberland.de, Climate protection manager EWO in coop. with climate protection managers
4 Open day/house events: advertise possibility (when relevant) EWO
4 Open day/house events: reports on events (when relevant) EWO
5 Supporting future plant conractors: advertise possibility & information event via waermewende-HP, EWO-HP, EWO-Newsletter EWO
5 Supporting future plant conractors: publish show-case via EWP-Homepage, waermewende-HP EWO
6 Techno-economic feasibility studies: Advertise possibility & tool via waermewende-HP, EWO-HP EWO
6 Techno-economic feasibility studies: article about studies/results via EWO-HP, waermewende-HP EWO
7 Energy offensive with boiler labelling: Press appointment with chimney sweep & call: what sticks to your heating? Via EWO-HP, Newsletter waermewende-HP EWO
8 Labelling campaign for 100% renewable heating: Call for label and photo action via EWO-HP, waermewende-HP EWO
8 Labelling campaign for 100% renewable heating: Report and photo of the action & information for those interested in heating exchange via EWO-HP, waermewende-HP EWO
Social media
1 Regional field trips: Invitation EWO
1 Regional field trips: Reports on field trips EWO
2 Facilitating collective actions: invitation to information-event EWO
2 Facilitating collective actions: news on information-event EWO
2 Facilitating collective actions: advertise possibility EWO
2 Facilitating collective actions: new on show- EWO
3 Facilitate mobile heating containers: call for interested parties EWO
3 Facilitate mobile heating containers: publish list of possible suppliers in the region EWO
4 Open day/house events: advertise possibility EWO
4 Open day/house events: reports on events EWO
5 Supporting future plant conractors: advertise possibility & information event EWO
5 Supporting future plant conractors: news on show-case EWO
6 Techno-economic feasibility studies: Advertise possibility & tool EWO
6 Techno-economic feasibility studies: news about studies/results EWO
7 Energy offensive with boiler labelling: Press appointment with chimney sweep & call: what sticks to your heating? EWO
8 Labelling campaign for 100% renewable heating: Call for label and photo action EWO
8 Labelling campaign for 100% renewable heating: Report and photo of the action & information for those interested in heating exchange EWO

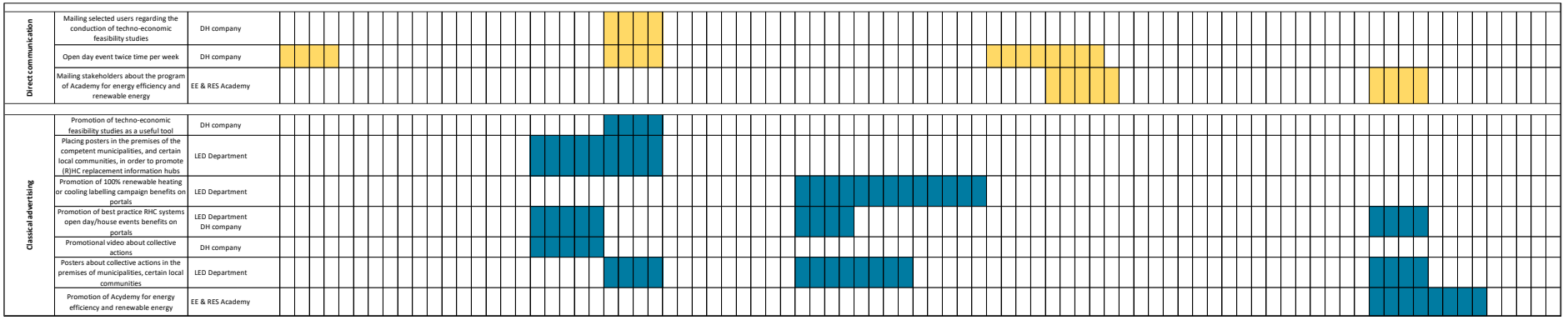

Classical advertising
7 Energy offensive with boiler labelling: call: what sticks to your heating? Poster/advertisement
EWO
Campaign adverts and posters: not defined yet
EWO
Miscellaneous / Other
External factors (public holidays etc.) - Summer holidays Bavaria

Annex VI - Media cooperation strategy North Macedonia

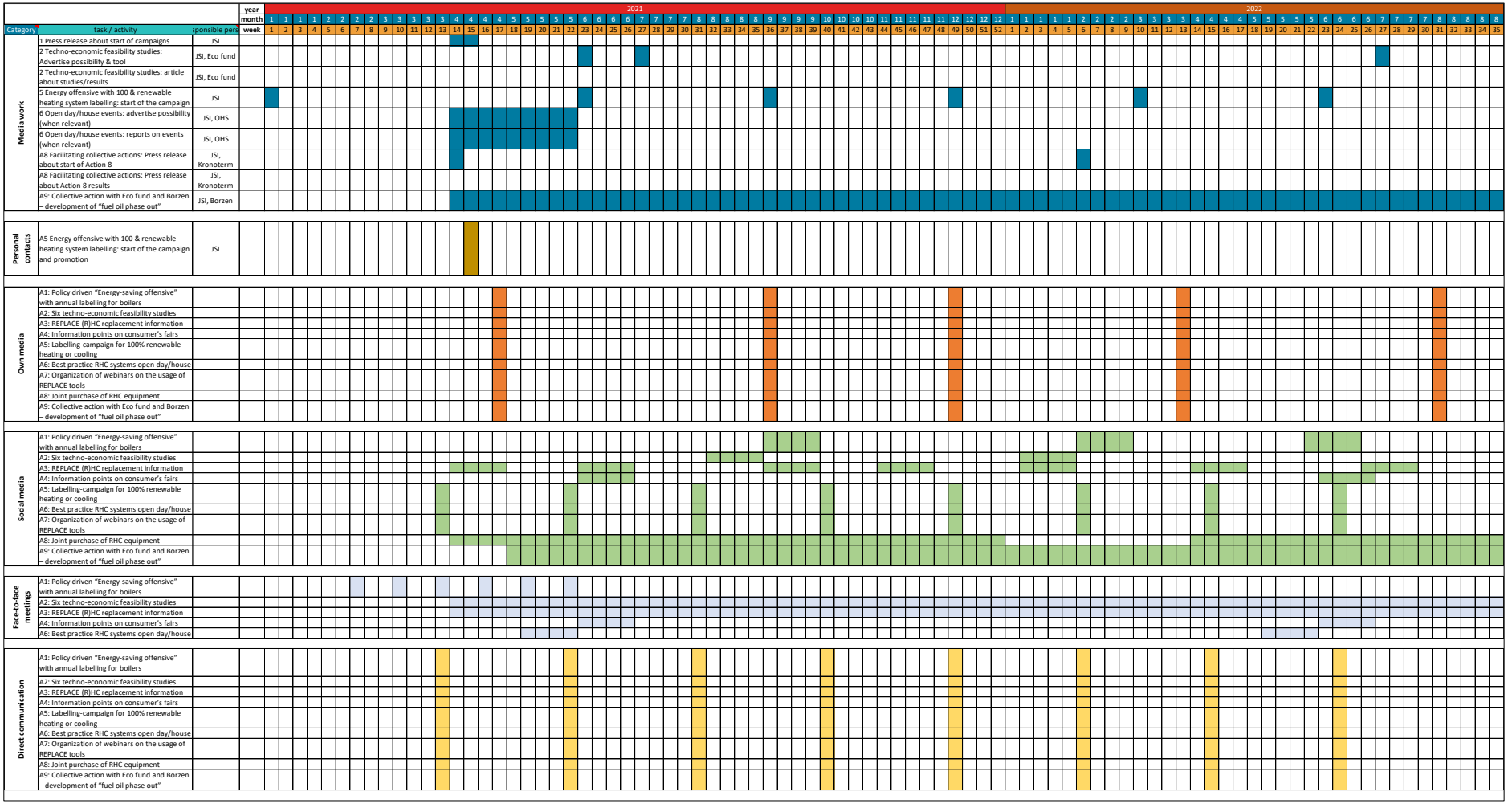


Annex VI - Media cooperation strategy Serbia




Direct communication
Mailing selected users regarding the conduction of techno-economic feasibility studies
DH company
Open day event twice time per week
DH company
Mailing stakeholders about the program of Academy for energy efficiency and renewable energy
EE & RES Academy
Classical advertising
Promotion of techno-economic feasibility studies as a useful tool
DH company
Placing posters in the premises of the competent municipalities, and certain local communities, in order to promote (R)HC replacement information hubs
LED Department
Promotion of 100% renewable heating or cooling labelling campaign benefits on portals
LED Department
Promotion of best practice RHC systems open day/house events benefits on portals
LED Department
DH company
Promotional video about collective actions
DH company
Posters about collective actions in the premises of municipalities, certain local communities
LED Department
Promotion of Acydemy for energy efficiency and renewable energy
EE & RES Academy

Annex VII - Media cooperation strategy Slovenia



Annex VIII - Media cooperation strategy Spain