CLEAN
Regional Context Assessments Report

Contents

I. Project context

The focus of CLEAN project - supporting the uptake of technologies and open innovation to meet EU energy efficiency targets for buildings in Europe's regions, is highly relevant in relation to the impact that COVID-19 has brought, considering both positive and negative sides.

Scope of the regional context analysis: analyzing the challenges and the potential opportunities in addressing energy efficiency in buildings in the context of COVID-19, the support measures took by authorities in this regard and their transformation potential into new policy instruments.

Approach of the regional context analysis:

The 1st part of the regional context analysis will integrate:

- a general overview of the COVID-19 impact in addressing energy efficiency in buildings at international level

- a more in-depth analysis of the positive & negative effects of COVID 19 in relation to energy efficiency in buildings addressed at national, regional and/or local levels and the reaction of authorities to the pandemics

The 2nd part of the regional context analysis will focus on:

-identifying support measures related to improving energy efficiency in buildings

-identifying the opportunities for contributing to improving existing policy instruments or developing new policy instruments

II. Impact of COVID-19 on addressing energy efficiency in buildings

1. International Context

Our society and economy are changing as our lifestyles shift in a world recovering from Covid-19.

COVID – 19 had a serious impact also on the efforts to improve energy efficiency in buildings. Shifts in energy demand from public to residential buildings occurred during the crisis in all regions. Progress made to use more efficient energy sources slowed because of the pandemic impact. This threatens progress in addressing climate change, air pollution and access to clean energy in all regions. The pandemic, coupled with social distancing and remote working, reduced energy consumption in public buildings by 10%, but increased energy consumption in residential buildings/houses by 20%. Time spent at home increased

energy consumption in households, leading to complex energy demand shifts, e.g., heating use increased electricity consumption by 40% in Mar/Apr 2020. Technical energy efficiency improvements were delayed since lockdowns and social distancing curtailed partner access to buildings. As the economy re-opens, public buildings will become more energy intensive due to the need for higher ventilation rates to reduce Covid-19 transmission risks. Economic uncertainty in regions could further delay investment in buildings resulting in ageing, inefficient buildings operating for longer.

While the governments are working to face these challenges, new local and regional instances stand out. A sustainable recovery throughout Europe calls for a reduction of the existing gaps between regions. Energy efficiency qualifies as one of the sectors with a greater potential to supporting economic recovery and decarbonisation simultaneously.

In this context, the European Commission is planning to update the energy efficiency directive, which includes targets for building renovation and the energy efficiency standards they should meet. A first draft proposal would require countries to implement measures to cut their final energy consumption by 1.5% each year from 2024 to 2030, nearly doubling the current requirement of 0.8%. That could be achieved by better insulating buildings or installing more energy efficient heating and cooling systems.

Europe currently renovates just 1% of buildings to save energy each year. The EC hopes countries will use the COVID-19 recovery fund to launch a wave of green renovations. Building renovation boosts local jobs as well as improving the welfare of the inhabitants and cutting down on greenhouse gas emissions, making it a popular idea for using up recovery money.

2. Regional Contexts

2.1. Border, Midland & West Region, Ireland

In Ireland, energy use in buildings accounts for 23% of all carbon emissions. In order to reach Paris climate goals all new buildings must be built to NZEB standard. Under the Climate Action Plan, 500,000 homes must be retrofitted to a B2 energy rating by 2030. Also, the national target is for all buildings to be net zero emissions by 2050. The European Union (EU) has agreed to this policy through the European Green Deal.

Thus, the retrofit of Ireland's commercial and public sector buildings is central to reaching the 2030 and 2050 national and international decarbonisation targets.

The main drivers of the Irish national decarbonisation strategy are:

- The Climate Action Plan 2021 is Ireland's roadmap to retrofit non-domestic building stock and reach the 2030 and 2050 targets.
- The Long Term Renovation Strategy sets targets for the energy upgrade of commercial and public sector building stock.
- The Building Regulations define energy standards required where major renovation is carried out and for new builds.

In this regard, the following measures are taken:

- address energy efficiency first through fabric upgrades
- reduce direct emissions from thermal energy by using low-carbon renewable heat technologies
- create a pathway to net-zero emissions for our building stock

The decarbonization of the building stock creates challenges at different levels. In order to achieve the national and international targets, there is a huge demand for upskilling the workforce, developing standards and educating building owners and occupants.

The Sustainable Energy Authority (SEAI) plays an important role in responding to these challenges through:

- designing retrofit programmes to stimulate customer demand
- identification of potential funding models and financing solutions to deliver the retrofit targets - capital grants, energy performance contracting support, and partnerships with the public sector.
- expanding the capacity and skills of the supply chain while maintaining quality and reducing the cost of retrofit.
- providing sector-specific structures and approaches based on tried and tested solutions to gather insights, develop capacity, and maintain high quality delivery of long term objectives.

Positive & negative effects of COVID 19

The Covid-19 pandemic restrictions had a negative impact on the work of the local authorities in regard to the retrofitting programme, causing delays in surveying, tendering and retrofitting works. Delays in the supply line delivery (particularly concerning the delivery of Heat Pumps, Windows, Doors, and Insulation) have also been witnessed.
A green recovery as the key to post-COVID housing stimulus has been discussed at national level, where economic stimulus measures that support transitions to more energy efficient housing and lower carbon outputs can offer social, economic and environmental benefits.
Investment in improving the energy efficiency of residential and public housing can contribute to economic recovery from COVID-19 as well as addressing environmental challenges.
In Ireland, along with the commitment to raise the energy rating of 500,000 homes by 2030, the Government announced, in the context of the pandemic, a stimulus plan in July including a 'retrofit skills training initiative' and significant additional funding for the Sustainable Energy Authority of Ireland to support expansion of the national retrofitting program in 2021.

General behavior / Reaction of authorities to the pandemics and support (type of supporting measures launched/maintained in the context of the Covid-19)

Climate mitigation measures took by the Irish Government related to the transition to renewable energy:
€100 million has been allocated to the Energy Efficiency National Retrofit Programme. The National Retrofitting Programme strengthens the commitment in the recent Programme for Government aimed at raising the energy rating of 500,000 homes and install 400,000 heat pumps in existing homes over the next 10 years to reduce carbon emissions and make homes more comfortable. There will be a focus on community retrofit schemes, retrofit schemes supporting those in energy poverty as well as other initiatives to support the achievement of our retrofit targets. The scheme will be implemented by the Sustainable Authority of Ireland.

EU Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings (EPBD), sets requirements at an EU level for Member States to improve the energy performance of buildings and to make an important contribution to the reduction of greenhouse gas emissions.

Major Renovations to dwellings will be required to achieve a cost optimal performance. This is in line with the National Development plan and will bring dwellings undergoing Major Renovation to a B2 Rated BER. A major renovation occurs when more than 25% of the building envelope is renovated.

NZEB for non-residential buildings was introduced into the Building Regulations in December 2017. This specifies NZEB performance requirements for new non-residential buildings and Major Renovation requirements for existing buildings – and is a significant change. These new performance requirements improve the energy and carbon emissions performance in the order of 60% and introduce mandatory renewables on all new non-residential buildings. These regulations apply to works to new and existing buildings which commence after 1st of January 2019 subject to a one year transition.

2.2. Region Västernorrland, Sweden

Started a pilot-study to get an overview of the of the situation in our region regarding the green transition in small and medium sized businesses, if there is any need of supporting the businesses in the transition, and in that case how to support them.

We have applied as an associated partner to the university in two projects regarding solar energy. First one to develop a tool to use for collecting information from inhabitants about using solar panels. In this case we will work together with the municipalities within our role as a coordinator of climate- and energy-counseling. The other one to try to create small hubs of solar production between households, and in this project we will participate with our knowledge and experience within the area.

Part of a project with the university and innovation hubs to create technique indicators to measure emissions from construction machinery, with goals to decrease the emissions. Project has started and a technique to collect data is under creation. If the project succeeds, it will be usable for regions and municipalities to decrease the emissions in procurements.

A project together with other regional agencies to coach small and medium sizes companies in green transition.

Positive & negative effects of COVID 19

Positive that the regional agency had time to focus on how to build the organization.

Negative effects are that less time and effort were put on sustainable transition during covid.

2.3. Donostia San Sebastian, Basque Country, Spain

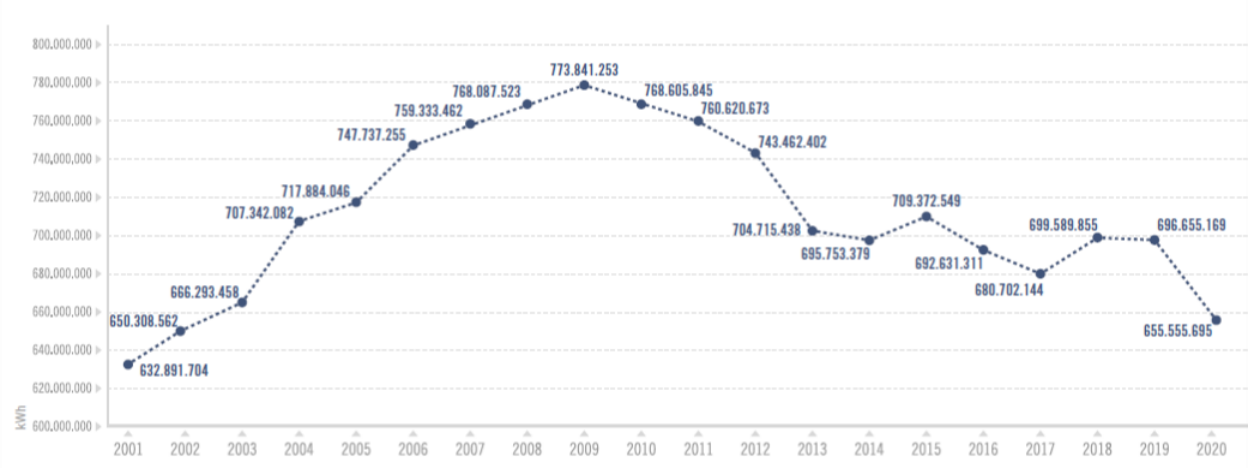
The personal mobility restrictions during the pandemic situation declared in early 2020 imposed conditions on people's way of life in all areas, with a direct impact on developments in consumption indicators at all levels.

In the Autonomous Community of the Basque Country, energy consumption in 2020 fell considerably in all sectors except the primary sector. Consumption fell by 4.2% in the residential sector, by 10.6% in the transport sector, by 12.7% in the industrial sector, and by 9.6% in the services sector. Conversely, consumption rose by 2.4% in the primary sector compared to the previous year. Demand for electricity fell by 8.5% against 2019, while consumption of natural gas was down by 16.8%. Demand for natural gas also fell in the other sectors, by 8% in industry and refining, by 7.6% in the residential sector, and by 10.8% in services.

Donostia/San Sebastián is a services city with a large concentration of commercial, educational, financial, health and care activities, in addition to cultural and research activities, and also contains offices belonging to institutions and public authorities; the city and the surrounding area also have a busy tourist industry. All this has a substantial effect in terms of attracting mobility, which is also determined by the complexity of interregional relations in Gipuzkoa, its location in an international transport corridor (ITC) and the proximity of Pasajes Harbour. It is for this reason that the lockdown and personal mobility restrictions in 2020 had an extremely noticeable impact on all areas of consumption and sectors in the city.

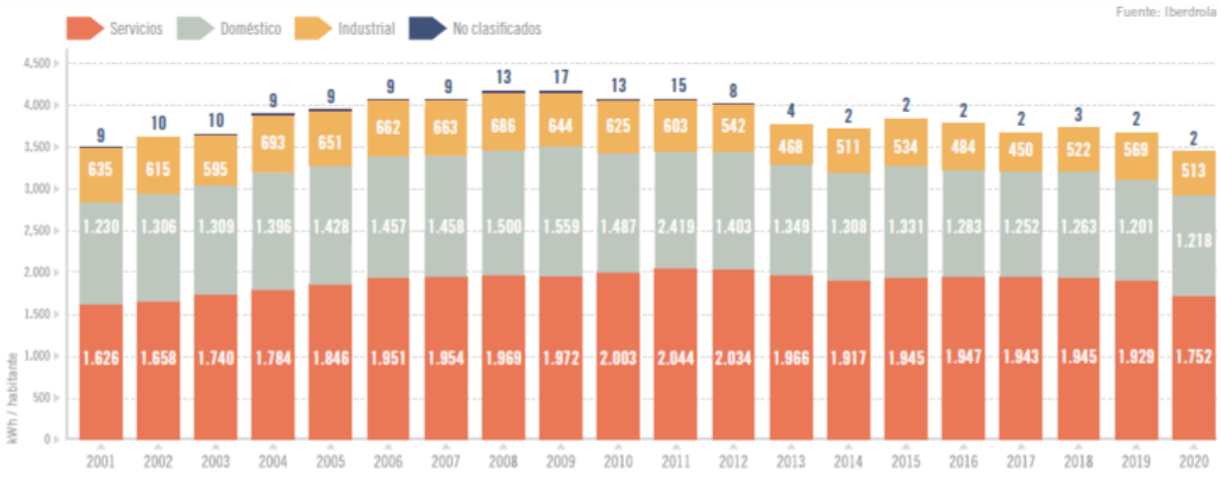
Over 80% of the city's energy consumption is dependent on fossil fuels. Consumption of gas and electricity accounts for most of the greenhouse gas emissions by the city's households and establishments. Consumption of electricity in these sectors accounts for 85% of total consumption, and 70% of the annual consumption of gas, indicating the importance of local people's pattern of behaviour and commitment to save energy and lower costs.

The changes to future production and social relations caused by the pandemic have affected the trend of electricity consumption in all the city's sectors; consumption of electricity fell by 5.9% against 2019, similar to the figures for the Autonomous Community of the Basque Country, standing at 655,555,695 kWh.



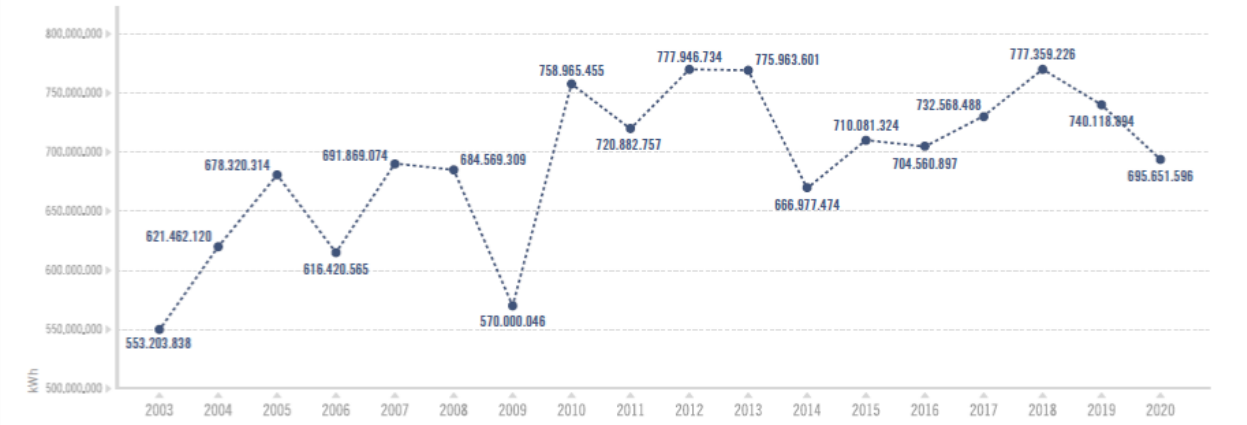
Trend in electricity consumption in Donostia

Per capita consumption of electricity fell in industry and in the services sector by 9.9% and 9.2% respectively compared to 2019, whereas consumption of electricity rose in the domestic sector by 1.4%. The sectoral distribution of electricity consumption in the city remained largely unchanged with respect to recent years, although changes to consumption in 2020 brought about an increase in the representativity of the residential sector to the detriment of the services sector: half of consumption was accounted for by the services sector (from 52.1% in 2019 to 50.3% in 2020); one third was accounted for by the residential sector (from 32.4% to 35.0%), and the rest by the industrial sector (from 15.4% to 14.7%), with a minimal percentage accounted for by non-classified areas (0.1%).



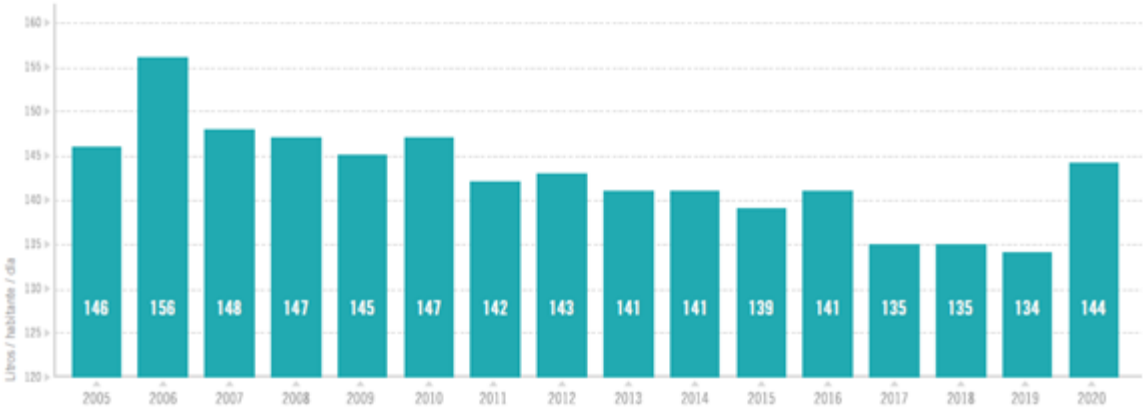
Trend in per capita electricity consumption in Donostia/San Sebastián

Gas consumption fell by 6.0% in 2020, while per capita levels of consumption in all sectors fell in the domestic sector (5.7%), services (11.5%) and the industrial sector (01%). In terms of sectoral distribution, changes to consumption in 2020 brought about an increase in the representativity of the industrial sector to the detriment of the services sector: gas consumption in the domestic sector accounts for two fifths of consumption (40%), followed by the services sector with 30% (compared to 32% in 2019), and the industrial sector, also with 30% (two points more than in 2019, when the figure stood at 28%).



Trend in gas consumption in Donostia/San Sebastián

Turning to the consumption of water in the domestic sector, this stood at 144 litres per head per day in 2020, up by 7% against 2019. The increase in domestic consumption coincided with the lockdown period, and remained high after the end of lockdown, globally offsetting the lower consumption observed in economic activities, a decrease which became more noticeable in the second quarter of 2020.



Trend in per capita water consumption in Donostia/San Sebastián

Finally, in terms of numbers of pedestrians in the city, the effect of the mobility and lockdown restrictions in 2020 may be clearly observed, with an overall reduction of around 47%. The pedestrian count in the main streets of Donostia's Old Town in 2020 fell by some 36%. The lockdown months, March, April and May, show the largest reduction in pedestrian mobility - respectively 65%, 91% and 74%. The fall was smaller in the other months. A general increase in numbers of 20% may be observed in 2021 with respect to 2020, which may be taken as an indicator of recovery that will affect other areas such as energy consumption.

Pedestrian count in 2020

Positive and negative effects of COVID 19

<u>Positive Effects</u>

- Energy efficiency becomes more relevant for citizens due to the increase of electricity consumption and water consumption in the residential sector. In addition, taking into account the increase of energy prices during 2021 and 2022, energy efficiency is even more important.
- The impact of climate change has been evident during the pandemic, which will imply greater action in the field of sustainability, renewable energy and energy efficiency in coming years.
- Energy efficiency will have to take into account in a more global way aspects related to comfort, indoor air quality and its implication in health (air conditioners, ventilation, air renovations, humidity, CO2, etc.).

- Teleworking has been accelerated by Covid-19, and thereby the need to adapt and improve the new work spaces, that is, in many cases, the homes themselves. This need to improve these spaces will lead to actions in energy efficiency and energy rehabilitation.
- Due to pandemic restrictions and teleworking, a reduction of vehicular mobility had taken place, which implied lower CO2 emissions improving air quality in the cities.
- Greater awareness of climate change, impact of mobility, greenhouse gas emissions and energy efficiency in citizenship and all economy sectors in general.

Negative Effects:

- In general terms energy efficiency has taken a backseat in importance during the most complicated months of health crisis of the pandemic Covid-19.
- Covid-19 measures such as natural ventilation coexist in offices, among other spaces and facilities, with air conditioning systems operating at their highest performance to the detriment of energy efficiency and higher CO2 emissions.
- The crisis of Covid-19 with severe impact in many economic sectors, among the increase of energy prices, could enlarge energy poverty in citizens.

4. General behaviour/Reaction of authorities to the pandemic and support (type of supporting measures launched/maintained in the context of the Covid-19)

As a result of the enormous international, national and local impact of the Covid-19 pandemic on the economy and on society, the various public authorities have been adopting extraordinary measures to deal with this impact.

At national level, the Spanish government availed itself of Royal Decree-Law of 17th March to establish extraordinary measures to address the economic and social impact of COVID-19. The measures taken include the following: the protocol to maintain commercial and industrial economic activity, measures to boost the liquidity of the production fabric, the Covid Fund, Temporary Redundancy Schemes (ERTEs) and their supplements, direct aid from all public institutions, social programmes to assist the most vulnerable individuals, families and sectors, measures to assist with research into COVID-19 etc.

The persistence of adverse effects on businesses and jobs caused by the health emergency caused by COVID-19 has made it necessary to maintain the measures laid down in Royal Decree-Law 8/2020, through Royal Decree-Law 2/2021 of 26th January to boost and consolidate social measures to safeguard employment.

It has to be mentioned, that the Spanish government approved the Royal Decree-Law 19/2021, of October 5, on urgent measures to promote building rehabilitation activity in the context of the Recovery, Transformation and Resilience Plan in the context of Covid-19. These measures are also coordinated with the regional governments and the municipalities.

At local level, Donostia-San Sebastián Town Hall, through its public entity Fomento de San Sebastián, implemented a new Economic Reactivation Plan for the city in 2020 and 2021 (PREK). The plan contemplates measures to encourage entrepreneurship, create employment, and assist the businesses and sectors hit hardest by the pandemic, such as retailers and the hospitality sector, in a digital transformation. It also takes into account Circular Economy and sustainability for local business and shops.

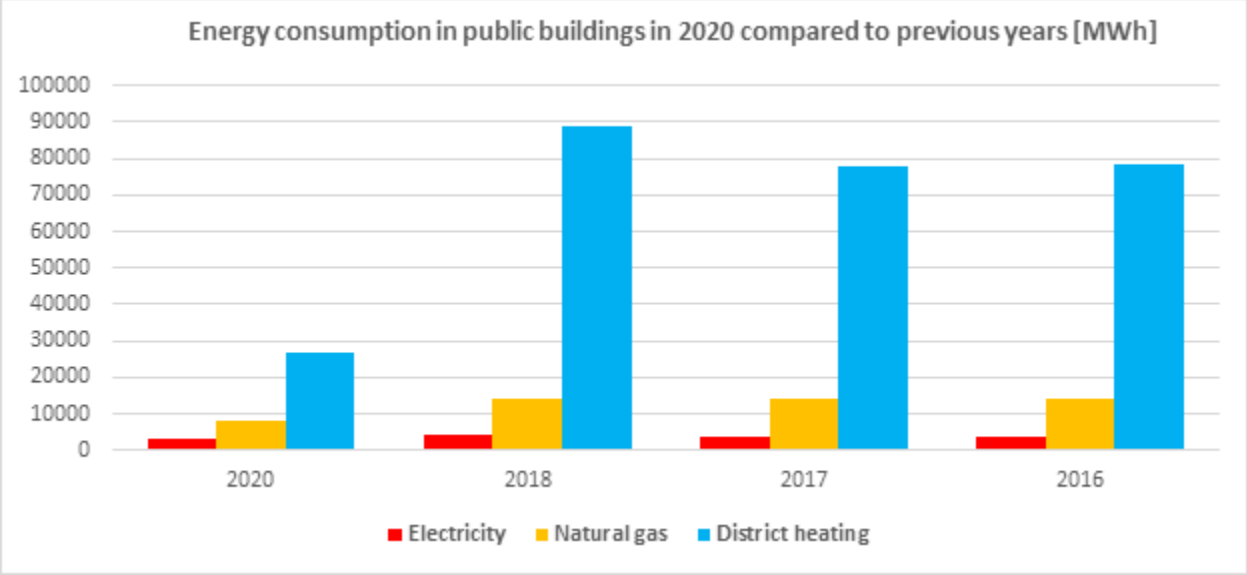
2.4. North East Region, Romania

The Covid-19 pandemic had various effects in terms of energy consumption, both in the public, private and commercial sectors. In some sectors of activity, energy consumption decreased significantly,

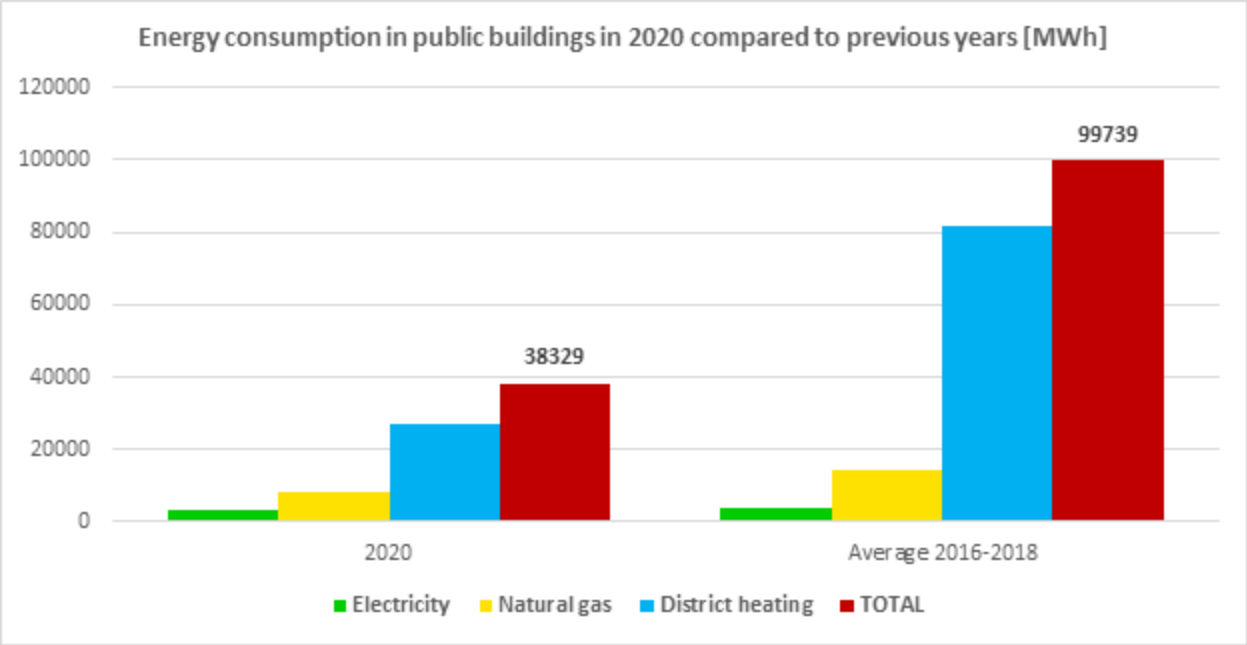
corresponding to reductions in economic and social activities (industry, tourism, transport, HORECA), while the residential sector registered a slight increase in energy consumption, due to the need to ensure the comfort of the indoor microclimate for longer periods of time, as well as work from home for a large part of employees in different fields. At the same time, energy consumption in the public health sector (hospitals) registered some increases (especially in electricity), due to the increase in the flow of patients and the frequency and intensity of the medical act related to specific medical operations, especially in Covid support hospitals.

Energy consumption in educational institutions/buildings recorded the biggest decreases, "online school" being the main factor in this respect, by reducing the energy consumption required for heating, air conditioning and lighting of buildings. Below are presented the comparative situations of energy consumption in educational buildings, recorded in 2020 compared to previous years.

No.	Educational buildings (44 kindergartens, 31 schools, 27 high schools - 221 buildings)	2020	2018	2017	2016	Average 2016-2018
		(MWh)	(MWh)	(MWh)	(MWh)	(MWh)
1	Electricity	3044	4004	3777	3890	3890
2	Natural gas	8269	14151	14009	14141	14100
3	District heating	27016	88770	77965	78510	81749
4	**TOTAL**	**38329**	**106925**	**95751**	**96541**	**99739**



* only partial data available from 2019.



From the point of view of energy efficiency, an analysis of the performances achieved during the pandemic period is not very relevant, because energy consumption must always be correlated with productivity and economic and social performance, regardless of the activity sector. In other words, the reduction of energy consumption in pre-university education buildings, for example, by more than 60% (!) can be appreciated as a positive aspect only in the context of reducing the impact on the environment in the short term, however, correlated with the medium-term effects and long educational process, with all the social implications it implies, can be worrying.

Iasi Sustainable Energy and Climate Action Plan, adopted in 2020

The European directives transposed into national legislation, namely Law 121/2014 on energy efficiency require the local public administration authorities in localities with a population greater than 20,000 inhabitants:
a) to draw up energy efficiency improvement programs that include short-term measures and measures for a period of 3-6 years,
b) appoint an Energy Manager, certified according to the legislation in force or conclude an energy management contract with a natural person certified under the law or with a legal person providing energy services approved in the conditions of the law.

The Municipality of Iași complied with the legal provisions appointing an Energy Manager and developed a Sustainable Energy and Climate Action Plan (PAEDC). The Sustainable Energy and Climate Action Plan is a key document that shows how the Municipality of Iași will comply with its commitment to reduce CO_2 emissions by at least 40%, set by local authorities and energy consumption by end users, by the year 2030. This action plan is developed on the basis of deep knowledge of the local situation in terms of energy and greenhouse gas emissions, resulting from the assessment of the current framework. By preparing the documentation, the aim is to align with Directive no. 2012/27/EC on energy efficiency with reference to the need to save primary energy, reduce CO2 emissions and make heating and cooling systems more efficient, in order to achieve the performance criteria for the production of at least 50% energy from renewable sources, 50% residual heat, 75% thermal energy produced in cogeneration or other alternative sources. PAEDC uses the results of the Emissions Reference Inventory to identify the best areas of action

and opportunities to achieve the CO2 emission reduction target and defines concrete measures, timing and assigned responsibilities that translate the long-term strategy into action
http://www.primaria-iasi.ro/imagini-iasi/fisiere-iasi/1596628202-Proiect%20plan%20actiune%20energia%20durabila%20si%20clima.pdf

NZEB Buldings (buildings with almost zero energy consumption)

According to the legislation adopted in Romania, by NZEB we mean buildings with very high energy performance, so with very low primary energy consumption. Of the required energy consumption in the building, at least 30% is to be provided from renewable energy sources on site or from a distance of no more than 30 km from the location of the building.

This standard became mandatory for all new buildings from 1 January 2021 and is also mandatory for all major renovations. Major renovation is also defined by Law 372/2005, updated in 2020, on the energy performance of buildings, as that intervention at the level of a building that exceeds 25% of the building's fiscal value.
In Iasi, a Local Council decision is exemptioning from paying the tax all the nZeb buildings since 2019, for 10 years.

These alternative systems can be:
- decentralized energy supply, based on renewable energy sources;
- cogeneration/trigeneration;
- centralized heating or cooling or block;
- heat pumps;
- soil-air heat exchangers;
- heat recuperators.

nZEB Week in Iași (29 June – 2 July 2022)
https://www.pro-nzeb.ro/articol-pro-nzeb/eveniment-nzeb-roadshow-in-iasi-29-iunie-2-iulie-2022/

The event brought together experts from the fields of construction and energy efficiency, providers of solutions and technologies for building buildings with a high energy performance, the academic environment, local public authorities, real estate developers, students, young people, children and the general public for four days, in Central Palas Mall in Iasi.
The activities included in the program intended to facilitate a better understanding of the new requirements on the energy performance of buildings (nZEB) and to prepare both the main actors in the construction sector and future generations for the development of a sustainable built environment.
The event was carried out by the pRO-nZEB Cluster team in partnership with Iasi Municipality, within the nZEB Roadshow project - a project financed by the Horizon 2020 program of the European Union.

Positive and negative effects of COVID 19

One of the positive effects of the Covid-19 pandemic is the reaction of the Romanian authorities to the challenges and effects on the economic and social environment that that period generated. The government has initiated and supported several financing programs in the field of energy efficiency and renewable energy sources aimed at both the public and private sectors, as well as the residential sector. Significant reductions of energy consumption and CO_2 emissions have been registered in industry, services and public buildings, as presented above. Another positive effect was the accelerate digitalization of education and public services, that will continue to be use even after pandemic to simplify and innovate the obsolete approaches in the field. Concerning individual households, the positive effect was that many people invested in retrofitting and energy efficient solutions (renovation, insulation, A+ equipment) to make homeworking more comfortable and less expensive.

Regarding the negative impact (from the energy efficiency point of view) we have to mention the huge pressure on hospitals with effects on delaying modernisation/retrofitting works, high consumptions and risks of overcharging the electricity systems. Public budgets have been drained by the measures to fight Pandemic. Tourism sector and various industries faced an accentuate crisis with major effects on long term on local/national economy and people's incomes.

General behaviour/Reaction of authorities to the pandemic and support (type of supporting measures launched/maintained in the context of the Covid-19)

Partners will develop this section based on the sources identified at local/ regional/ national levels. Points above are compulsory for all partners. Partners can add any point/ contents needed for their own regional context analysis.

Through the financing programs "ElectricUP" (Ministry of Energy), "Photovoltaic Green House", "Energy Efficient House" and "Energy Efficiency in Public Buildings" (Ministry of the Environment), respectively PNRR - Component 6. Energy, investments in efficiency were stimulated energy and renewable energy sources in the following sectors:
- renewable energy sources (solar) and charging stations for electric vehicles in the HORECA and SME sectors (ElectricUP program):
http://energie.gov.ro/electricup/
- energy efficiency in the residential sector (photovoltaic Green House and energy efficient House):
https://www.afm.ro/casa_eficienta_energetic.php
- energy efficiency in public buildings:
https://www.afm.ro/eficienta_energetica_cladiri_publice.php
• new energy production capacities from renewable sources (wind and solar) in the sector of large industrial consumers (PNRR – Component 6. Energy, Measure I.1):
http://energie.gov.ro/pnrr/
• energy efficiency in the sector of large industrial consumers (PNRR – Component 6. Energy, Measure I.5):
http://energie.gov.ro/pnrr/
Other financing programs being prepared by the Romanian Government to support the transition to a "green" economy:

MODERNIZATION FUND – Managed by the Ministry of Energy
Type of projects: Generation and use of electricity from renewable sources for own consumption.
The applicant's guide will appear in the second half of 2022.
Financing rate: It is expected that the financing rate will be 50% of the eligible expenses. From the little information published on the website of the Ministry of Energy, we quote: "The fund for modernization can cover up to 100% of the relevant costs of priority investments".

PODD – SUSTAINABLE DEVELOPMENT OPERATIONAL PROGRAM – Managed by
Ministry of European Investments and Projects
Type of projects: Generation and use of electricity from renewable sources for own consumption.
The applicant's guide will appear towards the end of 2022.

Also, the effects of the Covid-19 pandemic in the field of energy and energy consumption have been aggravated, starting from the second semester of 2021, by an alarming increase in energy and natural gas prices. The Romanian authorities have adopted a series of measures and legislative acts to support the population and the public and private sector by capping energy and natural gas prices, such as GEO no. 27/2022, for domestic and non-domestic consumers, whereby the prices of electricity and natural gas were capped at fixed values, for 12 months (until 31.03.2023), established according to the type of final consumer and the monthly consumption of this one.

https://www.anre.ro/files/PLIANT%20plafonare%20facturi%20CLIENTI%20FINALI_cf%20OUG%2027_2022.pdf

2.5. Normandy, France

As part of our post-covid survey, an interview of the majority of the stakeholders mentioned in the CLEAN action plan has been carried out.

Thus, we were able to conduct interviews with the 20 regional entities detailed in this table:

Organization	Type	Action
Service bâtiment durable Région Normandie	Local authority	Normandy Sustainable Buildings Plan
ARPE Normandie	Association	Animation of a plural network of self-renovation coaches (RePAAR)
ANBDD	Regional public agency	"How to mobilize residents more and promote renovation work?" - Developing Sustainable innovation at the heart of the territories based on research and exemplary initiatives
Rouen Métropole	Local authority	Raising awareness in municipalities about the development of wood construction (as part of the local COP21
EIRENO	Professional association	Digital housing monitoring and maintenance logbook
Lycée agricole Coutances	Public educational institution	Performance of organic farms and improvement of the lives of learners and employees
Enerterre	Regional Association	Mutual aid and support system for the ecological renovation of housing (primarily low-income households) via participatory projects supervised by professionals
Cingal Suisse Normande	Local authority	Creation of the Accort Paille Normandie agency
Ecopertica	Cooperative Society	Raising awareness, advice before purchase and before work, project management assistance for an ecological and efficient habitat. Sale of local eco-materials from production sectors that they develop. Manufacture of mechanized tools to produce these materials, design of construction methods and tools adapted to their implementation. Development of a local sector for the production of farm hemp and raw earth distributed in short circuits in the territory of Perche
Les chantiers de demain	Association	Cooperative of activities and employment specialized in the building trades in Normandy and registered in the sustainable development
INOLYA	Public institution	Positive Energy Family Challenge
CIER	Regional association	Selected pilot classes where a reflection is initiated to build a diagnosis and implement a concrete action plan to reduce energy consumption
PNR des Marais du Cotentin et du Bessin	Regional Natural Park Administration	Transfer of laboratory research to the field and in training in earthen construction and construction of the Norman prototype and promotion of contemporary achievements
ENERCOOP	Cooperative Society	Doctor WATT training to control energy consumption and reduce bills
FFB / FNAIM	Professional organizations	Business support system for a global response (energy renovation and home support for people)
Commune de Cherbourg en Cotentin	Local authority	Creation of the Energy Renovation Pass "Pass Rénov Energie"

DJP Energy	Private Business	Manufacture of the DJP eco-regulator, which is aimed at the industrial, tertiary and collective housing markets
MEF du Cotentin	Public institution	Creation of the "Green sectors" mission to develop a "skills jobs" action plan impacted by the ecological transition of the building sector (energy efficiency, environmental quality, circular economy and reuse of materials, development of positive biodiversity, orientation of young people towards a sector that is proving to be increasingly eco-friendly…)
CAPEB	Professional organization	"Eco Artisan BBC" Renovator Days (BBC = Low consumption buildings)
Centre Hospitalier Mémorial St Lô	Hospital Center	Execution of works on an occupied site in order improve the comfort of hospital users and health professionals, in a listed building as historical monuments. Registration in a process environment, which includes energy issues (-42% of energy consumption) but also waste management and indoor air quality

From the answers collected during the survey we found that the French Professional Organization for the Prevention of Building and Public Works (OPPBTP) can be added as a source of information about the impact of the pandemic on the sustainable building sector. Its contribution to the building sector's response to the Covid-19 crisis is detailed in the 2.4 section.

Further, as part of the other subjects of research conducted during the additional activities of the CLEAN project, we had an interview with the national network "Plan Bâtiment Durable" which translates "Sustainable Building Plan" and is a network of regional entities that work on the subject of sustainable building and is animated by a representative of the ministry of ecology.

The survey had 3 main questions about the pandemic:

- *How has Covid-19 affected your activity and, if applicable, still affects it?*
- *Which measures have you taken to make sure your activity could be maintained during the pandemic?*
- *How do you rate the impact of the sanitary crisis on your activity?*

The qualitative answers to these three questions gave us information about the positive and negative effects of the pandemic on those stakeholders that we detailed in the 2.3 section.
We could see through the interviews that the different structures suffered from the crisis differently depending on the position and this very marked differentiation between professions and activities is justified by the following points:

- Type of job: suitable for remote working or not.
- Means: availability of equipment allowing distance learning, training in digital tools, etc.
- Status during the lockdowns: classification of activities and professions as essential (allowing to continue, geographical restrictions on movement and curfew) or non-essential.

As we made sure the interviewees felt free to go further than these questions if they had more to say about the subject, this also allowed to have an overview of the different perceptions they had on the impact of the pandemic and the diversity of actions initiated to adapt and maintain their activities.

This can be presented on three main topics:
Organizational measures:

- Adoption of remote working for positions that allow it.
- Elasticity on working days and hours to adapt to personal constraints (childcare, comfort of the remote working place, etc.).

Material measures:

- Acquisition of Covid-19 related personal protective equipment for positions that are not adapted to remote working.
- Acquisition and/or generalization of digital tools for remote working and for activities that can be held remotely.

Financial/political measures:

- Negotiation of deadlines with project funders.
- Maintenance of salaries.

Positive and negative effects of COVID 19

Negative effects

Impact mainly felt during the first lockdown and especially on:

- Office and administrative activities, before the adaptation to remote work.
- Visits to individuals and construction sites, quickly mitigated thanks to protective equipment and the OPPBTP guide.
- Contact with the general public and teaching/training activities which has followed the same evolution as in other sectors of activity.
- Shortage of materials after the 1st lockdown following strong public demand.

Positive effects

- The COVID19 crisis has put the subject of housing back at the heart of households' concerns.
- The extension of the use of digital platforms during the crisis has made it possible to extend the scope of the actions of several actors. Thus, we have had the testimony of some that the number of volunteers has increased considerably following the creation/improvement of their website.
- The generalization of remote work during the lockdowns has made it possible to reduce the number of business trips for many stakeholders and has shown that it is possible to hold certain meetings remotely even outside of times of crisis.

General behaviour/Reaction of authorities to the pandemic and support (type of supporting measures launched/maintained in the context of the Covid-19)

Early regional response to the sudden cessation of the activities which lasted around one month :

The supply of masks by the Normandy Region adressed to the building sector professionnals and their distribution throughout the region by the FFB (French federation of building) allowed many of the surveyed stakeholders to maintain their activities during the pandemic.
Around more than 30 000 masks have been distributed between april and may 2020.

Besides the classical measures taken by the authorities, one initiative was often cited by the stakeholders as a much useful tool to maintain their activities during the pandemic and especially through the first lockdown which was the biggest hit on their businesses and different actions :

The OPPBTP (French Professional Organization for the Prevention of Building and Public Works) **guide to health safety recommendations** for the continuity of construction activities during the coronavirus sars-cov-2 epidemic.

2.6. Campania Region, Italy

Italy has been exposed to the COVID-19 pandemic and its economic repercussions before any other EU country, which makes its policies of particular interest to international observers. In Italy's institutional set-up, regions play a prominent role in economic development policies. Since March 2020, the OECD Centre for Local Development in Trento has carried out an extended, real-time mapping of the policy responses adopted by the Italian regions to support SMEs in the face of the current emergency. In doing so, it aimed to complete the work of the OECD Centre for Entrepreneurship, SMEs, Regions and Cities, consisting of an analysis of policies for SMEs implemented by national governments around the world.

The information analyzed in this note is based on an exclusive use of institutional sources: in a prevalent share (55%), these are constituted by legal documents, such as resolutions of the regional and provincial governments (by far the most prevalent type). In the absence of direct legal sources, press releases or news published on the websites of the regions were the main sources. The time gap for the publication of the measures and the need to codify and harmonise their unevenly detailed information, together with the fragmentation of sources and the lack of homogeneity of political communication styles, represent the main methodological elements of complexity underlying this work.

Between March 5 and April 22 2020, Italian regions and autonomous provinces launched 278 measures in total to support SMEs and their workforce in the context of the COVID-19 emergency. Based on the aim of intervention, the measures can be grouped into six macro-areas:

1. Simplified procedures: measures aimed at streamlining administrative procedures involving SMEs – such as the deferral of deadlines for submitting applications for public funding or for reporting on investment plans subsidised through public incentives – and regulatory simplifications (including in the field of public procurement).

2. Public financing: the introduction or remodelling at more favourable conditions of any type of subsidised financing for SMEs provided by regional public institutions, such as interest-free loans, non-repayable loans, alternative finance instruments and other financial instruments.

3. Access to bank credit: this macro-area includes all interventions aimed at facilitating access to bank credit for SMEs and reducing the related costs. Typical examples are credit guarantee funds (national or regional), the reduction of interest on credit, the suspension of instalments of loans or the rescheduling of amortisation plans over longer periods.

4. Labour and welfare: policies to maintain employment levels and support temporarily unemployed workers in SMEs, such as incentives for smart working and out-of-work benefits, including regional allocations to supplement the national redundancy fund.

5. Tax relief: measures aimed at reducing or postponing the tax burden for SMEs, such as the deferral of tax deadlines, exemption from tax advances, advance payment of public contributions and the like.

6. Planning and budgeting: this category includes the establishment of multi-stakeholder task forces to consult on policy strategies, as well as regulatory provisions aimed at reprogramming and reallocating budgets to deal with the emergency.

Simplified procedures (77 interventions), public financing (61) and access to credit (55) are more prevalent compared to measures aimed at labour and welfare (47), tax relief (20) and planning and budgeting (18). The total number of labour and welfare measures includes the 21 policies (one for each region or autonomous province) implementing the nationally financed redundancy fund. This brings the number of "fully regional" labour and welfare programmes, which often include support to remote training and smart working, to 26.

When observed in the context of national policies, regional measures show in several cases a clear coherence with the higher level of governance. In the case of the regional special sections of the SME Guarantee Fund (established at national level), of the abovementioned redundancy fund – financed at national level but regulated and managed at local level – and of the moratoriums on bank loans – based on agreements concluded at national level but with the possibility for regions to join and involve local credit institutions – the link between national and regional initiatives is explicit.

Regional policies also present several links with the European regulatory framework: in particular, the European Structural and Investment Funds (ESIF) for regional (ERDF) and social development (ESF) represent the financial source for half of the total appropriations entailed by the monitored measures.

Policy responses with a declared sectoral focus represent 89 of the 278 items recorded (32%). Agriculture and the primary sectors (agro-food, floriculture and others) are the most frequent subject of policy assistance (35), followed by tourism (22), commerce (14), manufacturing (10) and culture (8). There are 10 measures that support investments in testing, prototyping, research and experimental development (including correlated capital goods) the in fight against the COVID-19, or in industrial reconversion to produce goods and services necessary to tackle the pandemic emergency.

The prevalence of measures inspired by a one-fits-all approach from a sectoral point of view could derive from the contingent needs that characterise the current situation. As the time factor plays a key role, measures without an explicit sectoral focus could have been preferred, because they are faster to design and implement.

Although only 30% of the measures recorded (84 out of 278) envision allocation of new financial resources, it is estimated that the policies launched during the observation period entail a total burden on regional budgets of EUR 1.34 billion.

In one third of the cases, the measures explicitly draw on ESIF, in particular ERDF (direct financing and credit facilities for businesses) and ESF (labour and welfare measures). The measures based on European funding sources account for exactly half of the total resources allocated (50.1%) despite their relatively low number in the totality of measures.

The North accounts for about one third of total appropriation, and twice as much is utilised in the North-East compared to the North-West. The Centre and each Island individually account for one tenth of total allocations. The remaining and the largest part of almost a half (47.4%) goes to the South.

The predominant weight of the southern regions appears to be due to the greater availability of resources from the ESIF, deriving from the same principles of distribution that underlie European programming: the amount allocated to the regions is all the greater the larger the size of the concerned regional economy and the greater its delay in development. In addition, southern regions are on average lagging behind other Italian regions in the utilisation of ESIF, suggesting that a greater residual availability may have allowed greater room during the current emergency phase for reprogramming resources towards support to SMEs in a counter-cyclical function.

In addition to confirming the low propensity for tax relief measures, the analysis of the time evolution of the measures shows that, since the early stages of the observation period, simplified procedures have been the most recurrent policy macro-area adopted by regional legislators. On the other hand, the curve of public financing measures has shown a clear upward trend since the first days of April. In this regard, it is plausible that the European Commission's communications of 13 and 19 March and 3 April 2020, aimed at softening regulations of the State aid, provided regional legislators with a strong incentive to launch direct financial support measures for companies.

As the number of measures grew over the weeks, so did the number of regions adopting a diversified policy approach, i.e. covering multiple macro-areas. There are now 8 regions with measures covering all 6 policy macro-areas, 10 that cover 5 macro-areas and only 3 regions with less than 5 macro-areas involved.

Comparing the number of measures launched by different regions, the scenario appears to be much more diversified. The extremes are given, on the one hand, by three regions that introduced 5 or 6 measures, and, on the other, by three regions that have adopted 20 measures. Between these extremes, there are 10 regions with 14-18 measures, and 6 regions with 7-13 measures. The differences in the number and the areas of the introduced measures further confirm the diversity of the regional conditions and of the approaches taken by regional legislators.

This heterogeneity is confirmed by the analysis of the frequency of the different types of policies across the regions. At the level of macro-areas, four of these have by now been covered by the totality (labour and welfare, access to credit) or almost (simplified procedures and public funding, respectively 20 and 18 occurrences) of the regions, whereas the two remaining areas (tax relief and programming and budgeting) have been covered respectively by 15 and 14 regions.

Going into more detail and looking at the distribution of the types of policies that make up the six macro-areas, we notice a marked degree of heterogeneity: many regions have adopted a limited number of policy types (one or two), while others show a more diversified approach. This is the case, for example, of Abruzzo in the public financing macro-area, Sicily and the autonomous province of Bolzano/Bozen in access to credit, Friuli-Venezia Giulia in the labour and welfare macro-area (all with 4 types of policy adopted), as well as Veneto, Emilia-Romagna, Tuscany, Abruzzo, Apulia and Sicily in the simplified procedures area (5 types of policy).

The limited availability of statistical evidence is a major obstacle to estimating the effects of the policies analysed in this note. The information sources associated with the measures set out just in a few cases the quantitative objectives pursued by the legislator. An exception worthy of mention in this sense is Campania, which for each of the measures with a burden on regional finance indicates an estimate of the expected number of beneficiaries.

The only form of real-time monitoring of data on the use of the measures currently available concerns the redundancy fund, but since it has only been activated for a few weeks and at different times between the regions and the autonomous provinces, the level of representativeness of the information is inevitably limited.

Positive and negative effects of COVID 19

Against a backdrop of slow energy efficiency improvements, the Covid-19 crisis adds a new layer of uncertainty. First, the current economic crisis threatens to delay investments by businesses and households in more efficient technologies. While investments may not have changed significantly yet (particularly as projects are often agreed years in advance), the resilience of investments will be tested in the coming years, particularly if the crisis deepens.

Second, the crisis has triggered changes to behaviour and markets that are also adding uncertainty about energy efficiency progress. For example, the unprecedented drop in aviation transport demand could change the energy intensity of international travel and freight forever, depending on how the aviation industry recovers after the pandemic. Meanwhile, increased rates of teleworking are changing the way we move around cities. Such changes could reduce energy intensity in some instances but increase it in others.

Third, the shape of government policy responses to the economic crisis will have a strong bearing on energy efficiency progress, for better or worse. In industry, for example, stimulus funding in the past has sometimes resulted in ageing, inefficient facilities operating for longer. If governments do not consider the energy system in the design of Covid-19 stimulus packages, similar results could ensue.

On the other hand, the socio-economic benefits of energy efficiency are now becoming widely recognised. Governments are starting to rise to the challenge of "building back better" from this crisis, announcing billions of dollars in stimulus spending to increase energy efficiency, particularly in buildings and transport.

Thus, while the full impact of the Covid-19 crisis may take years to properly understand, the crisis clearly poses both risks and opportunities for energy efficiency.

2.7. Region of Crete, Greece

Apart from the significant economic, social, and political effects at global and national level, the spread of the pandemic has immensely affected the energy sector. The most obvious impact has been the sudden and sharp drop in demand, on the energy market, resulting in a significant decline in prices, especially in the oil sector, but also affecting gas and electricity, even to a lesser degree. Since pandemic caused great uncertainty in global economy, many Greek *Organizations*, *Institutes* or even *Public* and *Private Companies* activating in the energy sector, carried out detailed research for analysing the effect of the pandemic and its consequences. The sources identified are:

- The survey carried out by *National Consumer Association EKPIZO*, that aimed to investigate the effect of the pandemic in Energy Consumers.

EKPIZO is a Certified Consumer Union which was founded in 1988 with the aim to protect consumers' rights and improve their quality of life. For a social commodity such as energy, which is proved to be essential for the wellness and development of the community, research being published by the community of consumers is mandatory to express their needs, priorities, and level of satisfaction.

- The annual report from the *Institute of Energy for South-East Europe (IENE)*

IENE is a non-profit organization with key mission to constitute a permanent forum where energy issues can be discussed, analysed, reformulated, and presented to the scientific and technological community. This organization records principal activities to provide up- to – date information on key energy and environmental issues in South-East Europe.

- The concept paper from the *Greek Ministry of Development & Investment*, investigating the climate change for the period 2021 – 2027

Ministry of Development & Investment is responsible for financing and inspecting the building renovation programs in Greece the last years. The Ministry is responsible for setting up the specifications and provides guidance upon evaluation of approvals looking for financial support of their energy efficiency

projects through EU subsidies. This concept paper which deals with the significant problem of global warming and how to reverse the rate of climate change in the period 2021 – 2027, underlines the importance of energy efficiency in the building sector.

- Study performed by *Foundation for Economic & Industrial Research*, which evaluates the benefits of Greek Economy by renovation works for improving energy efficiency in the building sector in Greece.

Main findings from the sources identified at local, regional and/or national levels

In July 2020, the *National Consumer Association EKPIZO* published research on the effect of the pandemic on Energy consumers. According to that, energy cost has nowadays taken the 3rd place in consumers' priorities, following Food & Health sectors. This means that energy needs burden significantly the family budget. According to the research, 45.6% of the consumers tried to mitigate their energy cost by changing their old energy – consuming habits, while 7,5% of them changed their electricity supplier for improving their contractual prices. Only 2,6% of them proceeded to renovation works during the pandemic for improving energy efficiency of their buildings. Finally, an important outcome of this research is that most of the consumers are highly worried about the extreme rise of prices in energy products and the low efficiency of their buildings. In conclusion, the research of *Consumer Association* reveals that price fluctuation on energy products is an everlasting problem on consumers consciousness. On the other hand, building renovation would be a solution, although limited funding resources and raising economic problems due to pandemic, discourage energy upgrade plans.

In September 2020 the *Institute of Energy for South-East Europe*, published a report, dealing with the consequences of the pandemic in Greek Energy Market. According to that, except from the significant economic, social, and political implications at global and national level, the spread of COVID-19 has immensely affected the energy sector as well. The most obvious impact has been the sudden and sharp drop in demand, which affected all energy products, resulting in a significant decline in prices. As a result, many energy projects have delayed. Not only hydrocarbon exploration & gas pipeline projects, but also renewable energy projects, decarbonization plans & construction of new modern electricity production plants have been postponed.

Additionally, the pandemic had a negative impact on energy efficiency since government, as well as consumers have changed priorities in their budgets. The national annual budget focused mainly on Health expenses and put aside other important investment plans like building renovation programs. A typical example of this complicated situation was that Greek government failed to harmonise national legislation before the deadline of March 10, 2020, concerning revised Energy Performance Buildings Directive 2018/844. It was finally voted by the Greek Parliament almost 2 months later, on May 5, 2020.

In December 2020, the Greek *Ministry of Development & Investment* exported a Concept Paper under the title "Environment – Energy strategy for Climate Change 2021 – 2027". According to that, main development challenges & Program strategy against crucial problem of climate change, remain the renovation activities for improving energy efficiency in private & public buildings. Apart from that, smart energy technologies as well as renewable energy for private consumption, encapsulates the main aspirations for energy planning for the Ministry of Development & Investment in Greece for the next decade.

In September 2018 (some months before Covid-19 outbreak), the *Foundation for Economic & Industrial Research* published a study upon the impact of Energy Efficiency projects on Greek Economy. According to that, building renovation except for being a top priority of EU's Environmental Protection Policy instrument, is proved to be highly beneficial for regional economies as well. More specifically, according to the study for each €1M invested on energy efficiency, Greek Economy is receiving back income of

€0,5M, while country's GDP raises by €1,4M and 37 new employees are about to be hired. As a result, the potential of Greek economy growth due to scheduled energy efficiency projects in the next 5 years is expected to be 0.7% on an annual basis, while this could create 40.000 new jobs until 2024. For enforcing the business sector on this well promising area of development, this research suggests that additional policies should be developed, such as reduced taxes for energy efficiency projects.

Positive and negative effects of COVID 19

The global outbreak of COVID-19started in the beginning of 2019 and is still affecting every part of our lives. There are more than 3 years since the beginning of the pandemic and even though a large percentage of the population is vaccinated, virus is still threatening the lives of millions of people worldwide. There are encouraging hints that last mutations of the disease, like Delta & Omicron are less fatal, although the end of this crisis is still far away. Humanity has learned to adjust to a new way of living. Many fields on traditional working conditions, entertainment and social events have been revised.

Like many fields of the Greek economy, also energy sector, which is strongly linked with energy development, has been highly affected from the pandemic. According to IENE, energy consumption in offices and working places in general was reduced for an average percentage of 40%, while households scored a significant rise on their energy demands. That was mainly due to remote working model, which was initially adopted and occasionally followed even nowadays, by most companies on private and public sector.
Not only during lockdowns, but even in periods of less restrictions, consumers reduced energy consumption, and this caused many problems in energy market. The distribution line was not really affected, although this drop in demand ultimately damaged energy production. The plans of the key players in the energy market of Greece were changed. Moreover, the shrinking middle-income class was also affected by the pandemic and renovation plans of old buildings were either postponed or even cancelled. Not only the lower income but also the rising prices of energy products, have lately revealed the social problem of energy poverty.

On the other hand, there were some positive effects on Energy Market due to the pandemic. The drop of demand caused consequently drop of GHG emissions and the climate goals seemed to become reality even temporarily. Except from that, renovating and energy upgrading of buildings is considered one of the most ambitious ways to restart economy after lifting the restrictions, considering that *construction and renovation* sectors have always been a key factor of economic development. Moreover, the rising prices of energy products made the consumers realize that "spending less" is the best way to save family income. Meanwhile, one of the best ways to reduce energy consumption without lowering comfortability standards, is by improving the envelope of the building (thermal insulation) or by upgrading home appliances with more energy efficient ones.

General behaviour/Reaction of authorities to the pandemic and support (type of supporting measures launched/maintained in the context of the Covid-19)

According to Hellenic Statistical Authority (ELSTAT), there are about 4,8 million buildings in Greece, out of which 4,6 million (≈95,8%) are residential and the rest of them are considered to have mixed use such as Hotels, Authorities buildings, Hospitals & Clinics, Warehouses, Industries & Offices in General. The ratio between of detached houses vs block of flats is 2.1:2.5.

The building industry in Greece reached its highest development in the decade 2001–2010. The worse record was observed during the decade 2010-2020, when the world economic crisis accompanied by heavy austerity measures due to Greek Economy status, caused substantially the collapse of real estate interest in Greece.

Another crucial factor is that more than half of the existing buildings (55,7%) are built before 1980, which is a milestone year for including for the first time thermal insulation guidelines in the building construction regulation. As a result, more than half of the existing buildings in Greece have constructed without any thermal insulation. The latest improved normative of energy efficiency in buildings (KENAK) was voted in 2010, although only 1,6% of the existing buildings are constructed ever since. The rest 42,7% of the buildings were constructed with thermal insulation, although less efficient specifications regarding energy consumption were followed. As a result, the perspective of improving energy efficiency of the building sector in Greece is of high interest. It may radically lead to remarkable results on energy savings if old buildings could finally be renovated, reducing their energy demands.

The Ministry of Environment and Energy has apprehended this potential and has recently developed an improved funding tool, supported by EU, to encourage energy upgrade of the building sector. This program, named "Exikonomo/Energy Saving on building sector", is still ongoing and provides subsidy for energy renovation works which can reach 70% of the total budget. The program's specifications have lately been improved by the Ministry of Environment & Energy to include for the first time smart technologies and also social consciousness criteria, aiming to support low income families. The latest version of this funding tool has launched in early December 2021, while the submission period was initially scheduled to last 1 month. Since there was a great interest from applicants, the program extended its submission period for almost 3 months (till middle of March).

Along with the abovementioned Energy Upgrade program, the Ministry of Environment & Energy announced on 5th of February 2022 a new subsidy program, scheduled to start within the next 6 months, which aims to support households to replace their old refrigerators & air conditioning units with new energy efficient ones. More than 200.000 beneficiaries will have the opportunity to replace maximum 3 devices, so it is estimated that more than 380.000 devices will be finally recycled. The goal of this program is that each household could save more than 1.000 kWh on an annual basis, which corresponds to 25% of their annual energy cost. The estimated annual savings for each family are expected to be 150 – 300€, depending on the devices.

2.8. North Karelia, Finland

This analysis is based on a desk study and discussions with technical directors of the municipalities of North Karelia as well as the stakeholder group of the CLEAN project and other relevant stakeholders of the region. The references are mentioned in the footnotes.

Main findings from the sources identified at local, regional and/or national levels

The first cases of COVID-19 were found in Finland in January 2020. The number of cases started increasing in March 2020 and on the 13th of March, the Finnish Government, jointly with the President of Finland, declared a state of emergency. The Emergency Powers Act was put in operation in Finland, which meant for example closing of schools, shutting down most government-run public facilities, restrictions on gatherings and moving, placing people in quarantine, and closing borders. The Emergency Powers Act was in operation until the 15th of June 2020 and again between the 1st of March 2021 and the 27th of April 2021. There have been several restrictions in place in Finland throughout the pandemic.

One of the big changes due to COVID-19 in Finland was the shift from working at the employer's premises to working from home. Remote work has been part of the national COVID-19 measures of the Finnish government since March 2020. Already before the COVID-19 pandemic, Finland had one of the highest rates of people working remotely in Europe. In 2019, Finland together with the Netherlands topped the list of EU Member States for remote working, with 14.1 % of the employed people usually working from home. Soon after the COVID-19 hit Finland, in April 2020, the figure was already 59 %. North-Karelia was

not an exception. In 2020, it was the region in Finland, where the shift from working in the office to working from home was the biggest. After the capital region and Päijät-Häme region, North-Karelia was the third region where people did most remote work in Finland in 2020. It is said that the pandemic speeded up the development of remote work by a decade in Finland. Although the shift from offices to working from home happened fast, it looks like the change is here to stay. In the spring 2021, still 42 % of the employees in Finland were working from home and almost 80 % of people who had shifted to work from home would like to continue doing so also in the future.

Positive and negative effects of COVID 19

In general, the shift to remote work is considered as a positive change in Finland. Remote work brings many opportunities for a remote region of long-distances such as North-Karelia. The Regional Strategic Program 2025 of North Karelia acknowledges the possibilities of distance work as one of the means of attracting new inhabitants to the region. In 2020, there were 508 289 summer houses in Finland, of which approximately 26 000 in North Karelia. In 2021, 43 % of the employees who could work remotely, were sometimes working at their summer house. In addition, two thirds of these people were willing to do even more remote work at their summer house in the future. This could have a positive local economic impact in the future especially when the summer houses in Finland are usually located in regions that suffer from population loss. In order to further this positive trend, the regions must ensure functional and reliable communication technology, also in remote areas.

Remote work has also potential to cut traffic emissions, which is important to meet the Finnish and the European climate targets. In 2017, traffic was the sector causing most greenhouse emissions in North Karelia, in total 30 % of all the greenhouse emissions. North Karelia is a sparsely populated region of long distances, and remote work has potential of saving people from driving their private car daily to work and back home. In Finland, the statistics show that COVID-19 cut the private vehicle traffic by 4 % in 2020 and it is estimated that remote work will cut the private vehicle CO2-emissions by 125 000 tons annually in 2030. If 10 % of all the work force in North Karelia would work one day remotely per week, it would save 830 tons of CO2 equivalent emissions per year.

The shift to remote work will also benefit employers as they can decrease the volume of conventional centralized office space. The trend is towards smaller offices where employees can come when in need, e.g., for meetings that require physical presence. This trend is already visible in Finland together with the increase in the use of digital services and shared use premises. For example, the Central Government of Finland has a strategy, according to which 25 % of the central government employees will work in shared-use premises in the future. [14] The same trend goes with the private sector. It is economically feasible for companies to have smaller offices in use and to encourage their employees to do remote work.

It is difficult to estimate the impact of COVID-19 on the energy consumption of public buildings. According to the Technical Directors of the North Karelian municipalities, the impact of COVID-19 on the energy consumption has not been analyzed in the municipalities and there is no data available for the analysis. It is estimated that the impact was not remarkable, but there might be some potential in saving electricity if remote work becomes a lasting trend. The limited use of hot water when in remote work or school contributed to some energy saving in the public sector. In Finland, the children were in remote school during the springtime when the weather is cold. The heating systems of most schools are not automated enough to adjust the temperature of classrooms based on whether the room is in use. Finally, the absence of people can have a reverse effect on the energy consumption of buildings as people also heat up the building when they are present.

What also makes the analysis challenging is that 2020 was the warmest year in the Finnish measurement history. In Finland, heating constitutes a big share of the energy consumption and that is why weather has a remarkable impact on the overall energy consumption of buildings. In 2018, in North Karelia, heat

consumption was 67% of the total energy consumption of public buildings[15] and in 2020, heating constituted 64 % of the total energy consumption of households[16]. This makes it difficult to analyze whether COVID-19 played a role in the changes in energy consumption. In 2020 in Finland, the electricity consumption of households increased by 1 % compared to 2019. The energy consumption of electric devices was 9 TWh, which is 14 % of the overall energy consumption. Even though there was an increase in the energy consumption of electric devices such as computers and stoves, there was a decrease e.g., in the need of car heating, which compensated the increase.

In 2020, the share of heating in the household energy consumption in Finland was 39 TWh and there was approx. 4 TWH decrease in heating in 2020 compared to 2019. In 2020, heating constituted 64 % of the total energy consumption (61 TWh) of households. The share of heating water was 17 % (10 TWh) and heating saunas was 5 % (3 TWh). The energy consumption decreased also in North Karelia in 2020 compared to previous years. In 2020, in North Karelia, the total energy consumption was 11 034 GWh when it was 11 789 in 2018. The electricity consumption in North Karelia decreased as well, being 2449 GWh in 2020 and 2816 GWh in 2018.

General behavior and reaction of authorities to the pandemic and support measures launched and maintained in the context of COVID-19

The Regional Council of North Karelia published a regional strategy to survive and recover from the COVID crisis in June 2020. The strategy was prepared together with the municipalities, authorities, and the private sector. All the participants committed to implement the strategy. This strategy was the first regional strategy published in Finland that aims at recovering from the crisis as soon as possible. It is a joint expression of will and its actions are meant to be put in practice immediately.

The strategy applies to e.g., restructuring of the economy, internationalization, raising the level of know-how, accelerating the growth of companies, and reviving local demand. The plan also includes practical measures to attract new residents and professionals to the region. Remote work is mentioned as one of the means to attract new inhabitants. The strategy also acknowledges investments in construction and renovation of public buildings as means to new growth after the crisis.

Two other important programs that the Regional Council of North Karelia launched during the COVID-19 are the North Karelia Climate and Energy Programme 2030 (2021) and The Regional Strategic Program 2025 of North Karelia (2021). Both strategies acknowledge the potential of remote work to the region. The North Karelia Climate and Energy Programme 2030 sets a target of producing 80 % of the energy of North Karelia using renewable energy sources by 2030 (currently 67 %) and reaching energy self-sufficiency of 80 % by 2030 (currently 64 %). Both strategies acknowledge that transport and heating are the biggest challenges to reach these targets. North Karelia is a sparsely populated region of long distances and the increasing number of people doing remote work can help to cut driving kilometers and CO2-emissions considerably. This is also important to reach the North Karelian target of cutting half the traffic emissions by 2030 compared to the 2005 levels.

In case remote work will become a lasting trend and an essential part of the North Karelian lifestyle also in the post-COVID times, there is a need to develop the concept further. Not everyone has a convenient remote workspace at their home, nor is it wise that everyone must purchase office equipment such as printers for private use. Some people also find remote work lonely. The solution is a co-working hub, a space with office furniture and ICT equipment such as broadband connection, video projector, screens, and printers. In the future, there could be a network of both public and private co-working hubs all around the region. The service would ease the loneliness of remote work and create small communities of workers to support each other. Co-working hubs could be established in the existing club rooms or other shared space in apartment buildings. Libraries have a lot of potential in offering remote workspace with

the required ICT technology. In rural areas, the traditional village houses could be turned into co-working hubs.

In the "Experimental urban region Joensuu" project that took place between 09/2020 and 5/2021, six co-working hubs were founded in municipalities of North Karelia. The project was funded by the Ministry of the Environment of Finland. In the project, nine employees of the participating municipalities worked in total 160 days in these co-working hubs in their own municipalities. The co-working hubs were in public buildings such as libraries and in empty public and private office spaces.

The result of the pilot project was that, due to the remote work, the participating employees saved 11 207 driving kilometers and 1828 kg CO2-emission compared to the situation where they would have travelled to their workplace using a private car. Due to the project, the workers walked or cycled to the co-working space more often than they would have done to their office. The participants found the biggest benefit of the project to be the time savings when they did not need to travel to their work place every day. The time saved was mainly used for outdoor activities and sports. Most participating workers found that working at the co-working space had a positive impact on their well-being and that remote work increased their work flexibility, effectiveness, and efficiency. Compared to working from home, the participating workers found that the co-working space offered a calmer environment and made it easier to divide one's time between work and free time. For the future, the workers wished to work in a hybrid model that includes both remote work and office work.

As a continuation, there is a new project starting in the Regional Council of North Karelia funded by the Ministry of the Environment of Finland. In the yearlong project "Cutting off emissions – efficiently towards low carbon municipalities", the Regional Council will work with the municipalities of Joensuu, Kontiolahti and Rääkkylä. The project will analyze bottlenecks that prevent municipalities from improving their energy efficiency and search for new means to support municipalities in using renewable energy. The project also pilots co-working hubs to analyze opportunities to decrease the use of private cars, to cut emissions and to decrease energy consumption.

It is acknowledged that remote work itself does not necessarily decrease energy consumption. If one works from a sume house but has also a warm city apartment and an office space in use, the overall energy consumption may increase with the shift to remote work. That is why we must invest in automation and renewable energy. When it comes to heating, ending the use of fossil oil in heating is one practical means to reach the energy targets of the region.

2.9. Savinjska Region, Slovenia

At the European Council of 21 July 2020, the leaders of the Member States agreed on the Multiannual Financial Framework 2021-2027 and the Recovery Instrument.
Based on this agreement, on 28 April 2021 Slovenia adopted the National Recovery and Resilience Plan (RRP), which will facilitate recovery after the COVID-19 crisis and encourage investment in the green and digital transition.

So far, in order to help overcome the Covid situation and the crisis, Slovenia has adopted 10 anti-covid aid packages, which are primarily intended for recovery during the epidemic and dealing with it. With these measures, they have taken over all areas in our country (economy, tourism, agriculture, education, social, public administration, health…).

Main findings from the sources identified at local, regional and/or national levels

On 21 July 2020, EU leaders reached a historic agreement on the Multiannual Financial Framework for the period 2021-2027 and the recovery instrument NextGenerationEU. The agreement brings substantial additional funding to the country to facilitate and speed up post-Covid-19 recovery and support investment in green and digital transition.
The recovery instrument NextGenerationEU makes a total of EUR 5.7 billion available to Slovenia, of which EUR 3.6 billion loans and 2.1 billion grants (EUR 312 million from REACT-EU, EUR 134 million from the Just Transition Fund, EUR 1.6 billion from the Recovery and Resilience Facility and EUR 68 million for Rural Development).

Slovenia's RRP envisages utilisation of EUR 1.8 billion in grants and a good EUR 666 million in loans. Slovenia's RRP earmarks 43.45% for meeting green objectives and 20.05% for meeting digital objectives. The funds will also be used to promote the use of renewable energy sources and the efficient use of energy in the economy, sustainable renovation of buildings (energy rehabilitation) and ensuring a clean and safe environment.

With the help of ten anti-covid aid packages, several hundred thousand jobs were preserved (subsidies for waiting for work, subsidies for reduced working hours, tourist vouchers for all the population of Slovenia, crisis allowances, etc.), and the decline in economic growth was significantly lower than would be without action. The measures were taken at national level and applied equally to all regions.

Positive and negative effects of COVID 19

The positive effect of COVID-19 is that they have started to develop and implement the transition to digitalisation and the green transition. Funds adopted under the National Recovery and Resilience Plan were also earmarked for this purpose.

The negative effect is mainly in the increase of mental distress, loneliness, increased stress due to new adjustments, social exclusion, which is the result of a longer ban on socializing, distance learning and work from home. One of the negative effects is also increased energy consumption in households, as we have been at home longer than usual due to measures to contain the epidemic.

General behaviour/Reaction of authorities to the pandemic and support (type of supporting measures launched/maintained in the context of the Covid-19)

Slovenia is a smaller country, which is divided into 12 regions, but the legislation applies at the national level and is the same for all regions. Therefore, the response to the Covid-19 epidemic was the same at both regional and national levels. The measures taken by the state were as follows:

1. Complete closure of the country for 2 weeks - only the most urgent institutions necessary for the health, protection and life of citizens were operational.
2. Restrictions on movement - between regions, between municipalities, curfew introduced, limited stay in public places, restrictions on entering and leaving the country.
3. Prohibition of public events.
4. Prohibition of socializing outside the common household.
5. Limited operation of health services - only the most essential services that are vital.
6. Closure of schools and faculties - conducting distance learning and lectures.
7. Mandatory wearing of protective masks and disinfection of hands.
8. Possibility of vaccination and testing.
9. DCP condition.

Measures were taken very quickly and in the direction of curbing the epidemic as soon as possible and moving back to normal life. They quickly provided the necessary medical equipment and protective equipment (masks, disinfectants).

As the epidemic also hit the economy and other areas hard, they adopted 10 anti-covid aid packages, which mainly helped the economy and indirectly other areas - social security.
Partners will develop this section based on the sources identified at local/regional/national levels. Points above are compulsory for all partners. Partners can add any point/contents needed for their own regional context analysis.

III. Policy instruments and measures in the context of COVID-19

3.1. Border, Midland & West Region, Ireland

Support measures in the context of COVID 19

The SEAI Energy Academy is a new online resource that gives businesses free access to high quality energy training. The SEAI provides a wide range of information and advisory services to businesses including briefings, workshops, workplace resources, access to energy auditing services and case studies of best practice.

Project Assistance Grants are provided to businesses with large energy expenditure to help fund the development of feasibility studies and business cases for energy performance improvements.

Accelerated Capital Allowances allow businesses to reduce their taxable profits by the level of expenditure on energy efficiency in the year the investment is made.

Funding is provided to businesses that undertake design, construction and commissioning process that use the **Excellence in Energy Efficient Design** (EXEED) certification process.

The **Support Scheme for Renewable Heat** (SSRH) - supports the replacement of fossil fuel heating systems with renewable energy to contribute towards achieving Ireland's renewable energy and emission reduction targets. The scheme supports commercial, industrial, agricultural, district heating and other non-domestic heat users in the non-ETS sector. The scheme provides two types of support mechanism:

- An on-going operational support, for up to 15 years, for new installations or installations that currently use a fossil fuel heating system which convert to using biomass or anaerobic digestion heating systems.
- A grant to support investment in renewable heating systems that use heat pumps.

The **Better Energy Communities Scheme** funds community-based partnerships (which can include homes, community facilities and businesses) to improve the energy efficiency of their buildings.
Better Energy Communities is a national retrofit initiative with grant support of up to €28 million for 2021. It supports new approaches to achieving energy efficiency in Irish communities. Upgrades can take place across building types to reduce energy use and costs throughout the community. The aim is to deliver energy savings to homeowners, communities, and private sector organisations. All projects should be community oriented with a cross-sectoral approach, and you must show that you can sustainably finance the proposed project.

The Pathfinder programme is supporting Ireland's public sector on its decarbonisation journey.
In 2020, Schools Energy Retrofit Pathfinder Programme has retrofitted 39 schools across Ireland and is informing a much larger national programme for the energy retrofit of schools, providing valuable learnings on a range of typical retrofit options. As part of the 2020 Pathfinder programme, seven schools were chosen in rural and urban areas to undergo extensive fabric upgrades to improve the energy performance of the building.
Each school was assessed comprehensively to ensure that the measures were suitable for that school and would deliver value to both the school and the pilot. Design teams were appointed to each project, with medium to deep energy efficiency works delivered over the summer.
The upgrades, at a value of up to €10m, targeted energy efficiency improvements and included upgrades to doors and windows, insulation, lighting and heating upgrades as well as renewable technologies.
The Schools Energy Retrofit Pathfinder programme is funded by the Department of Education and Department of the Environment, Climate and Communications. The programme is administered by the Planning and Building Unit in the Department of Education and the Sustainable Energy Authority of Ireland with delivery partner Limerick Clare ETB.

Opportunities for new policy instruments

As Europe is discussing about a recovery programme to mitigate the damage of the Covid-19 pandemic, it has become clear that renovation of the European building stock would create several benefits.
According to the Buildings Performance Institute Europe, this would lead to an increase in economic activity, retaining and creating employment; it would support the achievement of Europe's climate and energy targets, and it would provide Europeans with better and healthier buildings. The scale of the investment opportunity is enormous, and while large figures for the economic recovery are currently featuring high in the political debate, the question remains what investment is needed to deeply renovate Europe's buildings.

The decarbonization of the building stock creates challenges at different levels. In order to achieve the national and international targets, there is a huge demand for upskilling the workforce, developing standards and educating building owners and occupants.

ERNACT aims to influence the implementation of the new Regional Operational Programme 2021-2027 for the Northern & Western Region, specifically priority 2 - low-carbon and climate resilience. It will do this by making submissions for new projects that focus on retrofitting and improving energy efficiency and renewables in buildings and homes in the region over the next decade, playing a major role in Ireland's economic recovery from the impact of Covid-19. This is a highly labour-intensive sector and can also create high-quality, sustainable jobs in local communities. The Good Practice learning and knowledge transferred from CLEAN, through its Regional Action Plan, has already provided input into the development of the new ROP 2021-2027. This programme has a target of 100,000 homes in the region advance retrofitted over its lifetime.

3.2. Region Västernorrland, Sweden

Support measures in the context of COVID 19

Possibility to apply for fundings to work with green transition after the pandemic.

Opportunities for new policy instruments

Possibility to apply for fundings to work with areas within sustainable development with goals to reach new policy instruments. The processes for these questions are long and will take time.

3.3. Donostia San Sebastian, Basque Country, Spain

Support measures in the context of COVID 19

In line with community targets and strategies to reduce emissions and reduce energy consumption in the European Union, regionally in the Basque Country and at the municipal level in San Sebastián, policies are operated and coordinated to reduce emissions and boost the energy efficiency of buildings.

The Basque Country has a long history in the implementation of active climate-change policies. In the wake of the first Basque Plan to Fight Climate Change 2008-2012, the Basque Country Climate Change Strategy 2050, KLIMA 2050, was published in 2015. A regional tool which addresses climate change by devising measures in keeping with international undertakings. With 9 goals and 24 lines of action, during the first planning period 70 multisectoral courses of action were presented, covering areas of mitigation and also adaptation to climate change. The KLIMA 2050 Strategy's objectives are in concordance with the international climate agenda, and now there is undergoing a review.

The Gipuzkoa Region Council is also committed to fight against the climate change and energy sustainability. The Gipuzkoa Strategy to Fight Climate Change 2050 (Gipuzkoa Klima 2050) was approved by Provincial Decree 18/2018, of May 29, which is aligned with the regional, national and European strategies. The Gipuzkoa Strategy has 7 lines of action that are broken down into 29 actions, including energy efficiency in buildings.

In San Sebastian, several plans have been developed to promote energy efficiency, green economy, and reduce emissions: Climate Change Strategy 2050, SEAP, Sustainable Mobility Strategy, etc. It should be noted that there is a strong commitment in the field of sustainability at the city level, the existence of complementary plans in different municipal departments is an evidence.

Regarding energy efficiency in buildings, the existing Strategies in Basque Country, the region of Gipuzkoa and San Sebastian can be summarised as follows in the framework of Klima 2050 with specific objectives:

- Energy Strategy 2030 in the Basque Country: Line 3. Reduction of energy consumption and increase of renewable installations in buildings
- Gipuzkoa 2050 energy sustainability strategy: Line 5. Promote energy efficiency and renewable energies in urban planning and buildings
- Energy Efficiency Directive in Buildings - San Sebastian (2021): promote energy efficiency, insulation and renewable installations in buildings.

In addition, it should be underlined that important projects are taking place to promote energy efficiency in the city and the region. In San Sebastian, the transformation of the Txomin Enea neighbourhood into a Smart district is a good example, with projects and actions focused in the fields of sustainability, energy efficiency, sustainable mobility, infrastructures and communications, transparency and citizen participation. In this sense, the SmartHomes project, included as Good Practice in the CLEAN project, has deployed a non-intrusive monitoring system for the building and the housing units at a subsidised municipal residential complex, with a total of 162 homes in 11 blocks. The objective is to boost and promote energy efficiency, and spike environmental awareness in the housing units through the use of ICTs and the information they provide, and to improve the management, functioning and maintenance of the building and the homes.

Opportunities for new policy instruments

Some of the positive effects of Covid 19 have meant the greater importance of energy efficiency and climate change in the general public, while the energy costs in buildings and in the use of ventilation and air conditioning facilities has increased. This represents an opportunity to develop policy instruments that promote energy efficiency in buildings in the residential sector, as well as in public buildings, offices and industries. More specifically in the field of energy efficiency in buildings, it can also be considered as a moment of opportunity to continue developing policies that promote energy retrofitting.

In addition, the higher energy prices boost the adoption of energy efficiency measures, so the current moment seems especially appropriate to work on new energy efficiency policies and new policies to regulate and limit the increase of energy prices.

Finally, the involvement of citizens in the field of energy efficiency through changing their habits is also very important. Therefore, the promotion of actions and new policies to encourage and train citizens in energy efficiency and better use of resources represents an opportunity.

3.4. North-East Region, Romania

Support measures in the context of COVID 19

Energy efficiency concrete measures applied or planned (in progress) initiated and supported/financed by the Municipality of Iași during Pandemic period

Energy efficiency measures	Indicator	Period	Estimated energy savings [toe/year]	Funds required [euro]	Source of funding
Recovery and consolidation – Pupil dormitory C9 "V.Lupu" High School	5.989 mp	2019-2020	265,7	1.479.452	BL
Thermal and electrical appliances retrofit "M.Costin" High School	4.748 mp	2019-2020	111,7	184.194	BL
Thermal retrofit – Sport hall "Gr.Moisil" High School	530 mp	2019-2020	83,1	160.169	BL
Recovery thermal installations at the Sport Hall "D.A Sturdza" School	804 mp	2019-2020	3,3	105.585	BL
Thermal and electrical appliances retrofit - Kindergarden PP nr.15 "I. Teodoreanu"	1.400 mp	2019--2020	48,1	153.003	BL
Roof insulation - Tehnological Economic High School "V.Madgeanu"	2.336 mp	2020	10,2	77.977	BL
Thermal retrofit - "D.Leonida" High School (Corp B, Corp C, Sport Hall)	5.106 mp	2020	133,0	86.407	BL
Insulation - "D.Leonida" High School (Corp A)	2.574 mp	2020	89,0	105.374	BL (local budget)
Insulation - "D.Leonida" High School	2.134 mp	2020	79,8	84.299	BL

Thermal retrofit - Technical High School for Transports Corp A	1.954 mp	2020	78,6	42.150	BL
Thermal retrofit - Sport Hall of the Technical High School for Transports	700 mp	2020	13,1	42.150	BL
Thermal retrofit - Technical High School for Communications (Atelier Corp A)	1.512 mp	2020	39,8	42.150	BL
Thermal retrofit - "Gh. Asachi" High School (Dormitory 1 - Corp D)	2.324 mp	2020-2021	78,9	155.000	BL
Capital retrofit - "B.P. Hasdeu" school (Corp C, Corp D, Corp E)	1.675 mp	2020-2021	93,7	142.500	BL
Roof insulation- Kindergarden PP nr. 28 centru - Scoala "I.Simionescu"	1761 mp	2020	10,9	31.612	BL
Roof insulation- Kindergarden PP nr.13	350 mp	2020	4,0	21.075	BL
Thermal retrofit - Kindergarden PP nr.14	2.555 mp	2020-2021	1,4	83.224	BL
Thermal retrofit - Kindergarden PP nr.21	1.946 mp	2020	12,8	42.150	BL
Thermal retrofit - Kindergarden PP nr.22	1.754 mp	2020	127,4	52.687	BL
Thermal retrofit - Kindergarden PP nr.26	5.370 mp	2020	88,9	77.977	BL
Capital recovery - Kindergarden PP nr.4	391 mp	2020-2021	21,4	53.612	BL
Roof insulation "Sf. Vasile cel Mare"Theologic High School Corp A	6.000 mp	2020-2021	32,3	63.612	BL
Recovery – Sport Hall of "St. Barsanescu" School	620 mp	2021	20,0	27.397	BL
Energy efficiency for e Recuperare Iași Hospital	1 cladire	2019-2023	2.597	3.100.000	POR
Sanitary and heating installations recovery (C2)"Dr.C.I Parhon" Hospital	2 etaje	2020-2021	120	500.000	BL
Thermal Recovery and energy efficiency – (C2)"Dr.C.I Parhon" Hospital	1 cladire	2021-2023	280	5.000.000	BL
Modernization and expansion Kindergarden nr.1.	542 mp	2020-2021	1,41	483.920	BL, BS, PNDL II
Study for Energy efficiency Economic High School	3 cladiri	2021	-	10.000	BL
Hidroinsulation recovery atelier Colegiul Tehnic "M.Sturdza"	1968 mp	2021	13,76	20.000	BL
Roof General restauration Liceul Tehnologic de Mecatronica si Automatizari	1640 mp	2021	10,32	40.000	BL
Roof recovery Sport hall "Waldorf" High School	551 mp	2021	1,67	20.000	BL
Roof General restauration corp C "Gh. Marzescu" HS	1512 mp	2021	4,37	22.000	BL

Roof General restauration "G. Calinescu" School	3735 mp	2021	5,30	28.000	BL
Facade and roof general restauration, scari, acoperis corp B - Carol I School	600 mp	2021	4,3	30.000	BL
Roof General restauration corp B si corp C - Kindergarden PP "Sf. Sava"	1060 mp	2021	2	40.000	BL
Roof and facade General restauration, Kindergarden PP 16	1389 mp	2021	3,22	40.000	BL
Roof General restauration Kindergarden PP 8	3288 mp	2021	3,92	30.000	BL
General restauration Kindergarden PN nr.23 - "I.Creanga" School	780 mp	2021	1,5	40.000	BL
Proiectare General restauration camin C1, C2, C 3 Transports High School	3006 mp	2021	34,72	90.000	BL
Thermal ”Gh. Marzescu” High School	10317	2021-2024	43	741.600	BL, BS, BERD
Thermal retrofit ”Mihail Sturdza” High School	8071 mp	2021-2024	34,4	615.400	BL, BS, BERD
Thermal retrofit ”Petru Poni” High School	7361 mp	2021-2024	60,2	358.800	BL, BS, BERD
Thermal retrofit ”Waldorf” High School	5388 mp	2021-2024	25,8	405.800	BL, BS, BERD
Thermal retrofit ”Alexandru Vlahuta” School		2021-2024	17,2	554.200	BL, BS, BERD
Thermal retrofit ”Elena Cuza” School	2623 mp	2021-2024	12,9	544.200	BL, BS, BERD
Thermal retrofit ”George Cosbuc” School	2733 mp	2021-2024	21,5	570.000	BL, BS, BERD
Thermal retrofit Kindergarden nr. 11	612 mp	2021-2024	6,02	136.800	BL, BS, BERD
Thermal retrofit Kindergarden nr. 21	464 mp	2021-2024	2,15	85.400	BL, BS, BERD
Thermal retrofit Kindergarden nr. 9	706 mp	2021-2024	3,44	150.000	BL, BS, BERD
Thermal retrofit Kindergarden nr. 25	1312 mp	2021-2024	8,6	377.000	BL, BS, BERD
Thermal retrofit ”I.C. Stefanescu” High School	15043 mp	2021-2024	64,5	687.000	BL, BS, BERD
Thermal retrofit” Dimitrie Leonida” High School	10622 mp	2021-2024	38,7	361.800	BL, BS, BERD
Thermal retrofit Transports High School	11793 mp	2021-2024	94,6	614.600	BL, BS, BERD
Recovery - Kindergarden nr.13	1 cladire	2020-2023	8,6	1.166.000	BL, BS, POR Axa 4.4
Dormitory renovation of ”Gheorghe Asachi” High Schools	2 cladiri	2020-2024	17,2	1.478.400	BL, BS, POR - Axa 4.4

BL = Local Budget
BS= Government Funds
BERD = EBRD loan

Opportunities for new policy instruments

The period of the Covid-19 pandemic represented an important moment in the adoption of new management and energy efficiency strategies and the consolidation or reiteration of existing ones, both at the national, regional and local level. In accordance with the targets for reducing CO_2 emissions assumed by Romania for the year 2050, i.e. for reaching the objective of climate neutrality, the measures adopted by the national and local authorities are part of the medium and long-term efforts to support energy efficiency and reduce of associated greenhouse gas emissions. The regulations established at the national and regional or local level, through supported legislative initiatives, which include both strict conditions regarding the quality standards of construction and new buildings, as well as financial support for improving the energy performance and reducing the dependence on fossil fuels of existing buildings, can ensure the necessary conditions for the transition to a "green" economy and a "sustainable" society.

In Iasi, the energy consumption of public and commercial buildings, and the emissions from buses, trucks, and other vehicles together account for around 67 per cent of the city's annual emissions of nitrogen oxides, which are responsible for air pollution. This area presents significant potential for energy savings.

Iasi Municipality is currently developing to the new **Green City Masterplan** in partnership with EBRD. EBRD Green Cities programme aim is building a better and more sustainable future for cities and their residents, identifying and prioritizing environmental challenges, which are then connected with sustainable infrastructure investments and policy measures.

One of Romania's largest cities, Iasi, will improve the energy efficiency of public buildings thanks to a €20.5 million loan from the European Bank for Reconstruction and Development (EBRD). The EBRD loan will finance the energy efficiency upgrading of 15 public buildings and the reconstruction of a bus and tram depot, designed and equipped for a new urban transport fleet that currently includes 32 trams and 44 electric buses. The depot infrastructure will support low-carbon transport in the city and enable the operation and maintenance of the current and future urban transport fleets. The renovation of buildings and the integration of energy-efficiency and renewable-energy measures in the upgraded depot will lead to energy savings of approximately 34 per cent.

Iasi intend to influence to the future programming period of the new Regional Operational Programme 2021-2027 with the expertise acquired the Good Practice learning and knowledge transferred from CLEAN, also from the implementation the Green City Masterplan. The Municipality will to continue to develop new projects by making submissions for new proposals that focus on retrofitting and improving energy efficiency and renewables in buildings and homes.

3.5. Normandy, France

Support measures in the context of COVID 19

The French Recovery Plan :

In Normandy, 209 projects were selected as part of the France Relance plan, for the energy renovation of public buildings, representing an amount of nearly 7M€.

The selection of projects by the Government was carried out on the basis of three priorities:

Ecological and economic efficiency of projects, promoting the rapid recovery of the local economy and employment;

- Young people. Half of the envelope benefits the sphere of higher education and research, improving the living and training conditions of students;
- Territorial balance.

A 9,5 M€ envelope for the improvement of student living conditions in the region :

- Caen: energy renovation of building 3 of the Lébisey residence
- Mont-Saint-Aignan: energy renovation of the Flaubert building of the Panorama residence
- Le Havre: energy renovation of the Labédoyère residence
- Caen: in partnership with the University of Caen Normandy, energy renovation and creation of a wellness area and a third place for student life on Campus 1

Opportunities for new policy instruments

In addition to putting housing and energy savings back at the center of household concerns, the Covid-19 crisis can be seen as an opportunity to promote eco-materials and bio-based materials. Indeed, among the most interesting effects of this crisis, the fact that materials such as earth, hemp and straw have resisted shortages.
This resilience can be attributed to the fact that these materials are very locally available and therefore protected from the vagaries of international markets.
It would therefore be interesting, within the framework of political instruments, to grant them better recognition from a technical and insurance point of view.

3.6. Campania Region, Italy

Support measures in the context of COVID 19

NATIONAL LEVEL: In May 2020 the Italian Government issued urgent legislation to assist with the recovery of the Italian economy, following the unprecedented shock of the covid-19 pandemic.

Among many other measures, legislation called “Relaunch Decree” (Decreto Rilancio) introduced new tax credits for improvements to Italian properties. These tax credits, called “Superbonus” are intended to cover 110% of the costs of energy efficiency and structural seismic improvements of Italian properties, help with the recovery of the economy and in the process, ensuring tax compliance in the local building industry. This article is only a general introduction, it is not intended to be a guide. Detailed professional guidance is always recommended with this matter.

“Superbonus” is an unprecedented tax break as it covers 110% of qualifying expenditures incurred between 1st July 2020 and 31st December 2021. The Superbonus 110% has been recently extended to December 31st 2023.
The tax relief consists of deductions from the gross tax and is granted when the measures carried out increase the energy efficiency or reduce the seismic risk of existing buildings.
In particular, it is available for expenses incurred for measures on common parts of buildings, on real estate units functionally independent and with one or more independent accesses from the outside located inside multi-family buildings, as well as on single real estate units.
In detail, the highest deductions are recognized for documented expenses incurred by the taxpayer for the following measures (so-called “driving interventions”):

- Thermal insulation
- Replacement of existing winter air conditioning systems with centralised systems
- Earthquake-resistant interventions

The Superbonus is also available for the following additional measures (so-called “driven interventions”), provided that they are performed in conjunction with at least one of the previously listed driving interventions:

- Energy efficiency requalification
- Installation of infrastructure for recharging electric vehicles

The beneficiaries are:

- Condominiums
- Individuals, other than for properties used to carry on a business or profession
- Housing cooperatives
- Non-profit, social promotion and voluntary organisations
- Amateur sports associations and clubs

Taxpayers can decide to either keep the bonus for the purposes of tax deduction, transfer the credit, or exercise the option to request "invoice discount" through the transfer of the credit to the supplier who will carry out the works.

In order to choose the most suitable option, it is advisable to carry out a preliminary check for the presence of income which would allow the deduction, as in the conversion phase of the Decree, the possibility of transforming the deduction into a tax credit for direct use was eliminated.
If the taxpayer decides to transfer the credit due or opt for a contribution in the form of a discount on the amount due, this must be submitted as a specific request to the Revenue Agency. The transfer can be arranged in favor of the suppliers that have carried out the works, other subjects (private persons, enterprises, companies and bodies), or credit institutions and financial intermediaries.

LOCAL LEVEL: The Naples Agency for Energy and Environment (ANEA), during the lockdown, had organize an event called "Superbonus digital edition": a several appointments (training course, workshop, technical contact assistance) to provide up-to-date information about the economic measures, in particular "Superbonus 110%", taken to deal with the COVID-19, and to offer support and assistance to businesses.

Opportunities for new policy instruments

According to National Agency for Energy and Environment (ENEA), the Superbonus is a great opportunity to promote building requalification, foster better living conditions and energy use at home, allowing the reduction of energy bills, producing a positive impact, improving comfort, health, energy security and resilience of all home occupants. Furthermore, ENEA hopes that this incentive will contribute to achieve the 2030 energy saving objectives, and will accompany the country's energy transition with robust demand in the construction sector, which also contributes to GDP growth.

3.7. Region of Crete, Greece

Support measures in the context of COVID 19

According to latest announcements from the Ministry of Environment & Energy, not only electricity but also the fuel oil market in Greece have recorded an unexpectedly high raise on end-user prices. This phenomenon, also ascribed as side effect of the pandemic, has multiplied the price of (i) electricity by 4 time and (ii) natural gas by 5 times, compared to average prices of 2020. The energy cost is now prohibitively high for Greek families. For that reason, the Ministry of Environment & Energy has recognized the need of support and is now running the 6th month in a row of subsidizing the electricity bills of households by 150€/MWh for the first 150kWh and 110€/MWh for the next 150KWh consumed. Apart from that, low-income families enjoy the privileges of a "social protected energy pricelist", with

much lower prices than the one commonly charged. Vulnerable or unemployed people may apply for this group of special energy prices and keep themselves away from the lately observed social – economy serious problem of energy poverty.

In addition, the Greek Regulatory Authority for Energy (RAE) has recently provided a new tool of good governance for energy consumers. The new online platform[1], after filling data of household energy demands, provides analytical results upon the best solutions available in the electricity market. That is definitely a very useful guidance for keeping consumers thoroughly updated on the latest available energy products and protect them from any hidden charges.

The Ministry of Environment & Energy has promptly identified the benefits coming from the establishment of an energy community and voted in 2018 the law No. 4513[2], which enables for a group of consumers to create such a community for developing renewable energy projects. Upon commissioning, the members of the community enjoy the privilege of substantial energy independence. Cretan consumers have taken advantage of this law and created the first Energy Community in Crete, named MINOAN ENERGY. This community, consisting of over 230 members, was founded in Arkalochori which is a small city located in the center of Heraklion Regional Unit. The fact that Crete is an area of high renewable energy potential, results that the energy community is expected to be a low-risk investment. On the contrary, under recent circumstances of everlasting rising prices on energy products, each consumer being part of an energy community, sets himself in an absolute protected environment, away from the unpleasant market price changes. The first project of Minoan Energy, which is a solar power plant of 405 kWp, is almost ready and is expected to provide with free electricity to its members for the next 25 years. Local Municipality together with the Region of Crete, decided to provide electric power for free through Minoan Energy Community, to 30 vulnerable families, victims of the latest earthquake occurred in Archalochori area.

The pandemic has highlighted the urgent need for energy efficiency and renewable energy investments targeting buildings and public infrastructure. The Region of Crete has applied for and been approved support by the European Local Energy Assistance (ELENA) Mechanism to facilitate and speed-up the maturing process of energy projects in Crete. ELENA is a joint initiative by the European Investment Bank and the European Commission under the HORIZON 2020 programme that supports the preparation of projects that improve energy efficiency and renewable energy use in buildings.

Crete's project Interact in Crete (Integrated Energy Projects and Actions in Crete) includes Public Lighting and Network Upgrade, Energy Efficiency Retrofit in Public Buildings (mainly Hospitals and Health Centres) and Virtual Net-metering & Net-metering through Energy Communities. Crete's project financed by ELENA has a total budget of approx. 1,5M€, the estimated investments cost is approx. 40M€ and the final beneficiaries are Cretan municipalities, universities, and the Health District of Crete.

Moreover, the need for clean, healthy and energy effective space has led to a new start – up company, born into the laboratories of Foundation for Research & Technology (FORTH) situated in Heraklion City. The company produces novel high-performance photocatalytic materials operating under the influence of solar and/or artificial (indoor) lighting, that have proved most effective on improving indoor/outdoor air quality, saving energy and on the disinfection of Bacteria and Viruses. Their product, unique of its kind, may provide cleaning of air in indoor places. By applying this product, it is not necessary to use natural or artificial ventilation, reducing the energy needs of the building and keeping the space clean from viruses.

Opportunities for new policy instruments

Following the example of Minoan Energy, such initiatives could be transformed into policy instrument for supporting low-income families in Crete, which face nowadays the severe threat of energy poverty.

Moreover, innovation could play a significant role in phasing the challenges of energy efficiency in buildings during a pandemic. Policy makers could support the cooperation of business and innovation centers for producing innovative solutions. The good practice of PCNano Materials start-up company should be strongly supported in several ways by Greek Authorities, since innovated ideas may create competitive business schemes and play a significant role on the growth of Greek economy.

3.8. North Karelia, Finland

Support measures in the context of COVID-19

When working remotely, people are spending an increasing share of their time at home, which shows in the increase of energy consumption at households. The two following chapters *phasing out oil heating in buildings* and *home office tax deduction* present examples of national support measures that the Finnish authorities have put in place to support people in this regard. In the new working culture, one can flexibly work online from home, office, and summer house, which can contribute to an increase in the overall energy consumption. Smart modern building service technology could help to save energy in the new working environment both in public and private sectors and to meet the energy efficiency targets of the European Union. There are many modern technological solutions available, but the challenge is to raise the awareness of both the technicians and the decisions makers on the possibilities of the smart technology. The third chapter presents *the LVISKA renewable energy based building automation learning environment*, which promotes low-carbon solutions for the building sector in North Karelia.

Phasing out oil heating in buildings

Buildings account for approximately 32 % of Finland's energy consumption. Renovating the building stock is a vital component of Finland's transition to a carbon-free clean energy system. The long-term target of Finland is to phase out oil heating by 2030 and to reduce carbon dioxide emissions from the building stock by 90 % between 2020 and 2050. According to the Greenhouse gas emission reduction potential study made as part of the CLEAN project, energy sector emissions could be reduced by renovations improving energy efficiency of buildings, replacing conventional and fossil heating methods with alternative renewable energy methods, and switching regular electricity to green electricity. According to the report, these actions can reduce energy sector emissions by 21,4 % at minimum. In 2020, the proportion of light fuel oil was 4 % of energy sources used for heating in North Karelia. In 2017, the greenhouse gas emissions of oil heating were 3 % of the total emissions of North Karelia.

As part of the COVID recovery program, the government of Finland designated 28,52 million € in the 2020 budget, 9,4 million € in 2021 budget and again 65 million € in the EU Recovery and Resilience Facility funded Sustainable Growth Programme in 2021 for converting building heating systems from fossil-based oil heating to energy-efficient heating. Phasing out oil heating in buildings is part of Finland's Recovery and Resilience Plan. The funding can cover in total approx. 26 000 buildings.

The most important challenge to phase out fossil oil heating by 2030 in Finland is the large initial investment required. Obstacles to the realization of the investment include potentially low value of buildings, size of the investment, uncertainties associated with the future value and use of buildings, low household income and age of the residents. It is estimated that fossil oil heating is currently used in about 130,000 low-value buildings in Finland.

According to Finland's long-term Repair Construction Strategy, oil heating generates 263 g greenhouse gas emissions per kWh. To receive financial support, new heating systems must reduce greenhouse gas emissions by at least 30 %. For example, electric heating generates 65 g/kWh in greenhouse gas emissions,

representing a reduction of 75 % if used to replace fossil oil heating. Transition to district heating generates 160 g/kWh in greenhouse gas emissions, which would bring a reduction of 39 %.

The funds are granted by the Centre for Economic Development, Transport and the Environment on a first come, first served basis. The requirement is that the building is in regular residential use and that oil heating is replaced by another heating system, which is not based on fossil fuels. The maximum fund given is 4000 € for water-air heat pumps, ground heat pumps and district heating, and 2500 € for other approved heating systems. Based on applications received by far, the average investment cost is 11 800 € (for the 4 000 € support) and 6 600 € (for the 2 500 € support).

By 10th of January 2022, 18 484 applicants had applied for the support to phase out oil heating and 37,6 million € had been granted. By far, 190 applicants in North Karelia had received funding of total 737 000 €. In North Karelia, 72 % of the applicants had shifted to water-air heat pumps, 13 % to ground heat pumps, 9 % to district heating, 4 % to electricity and 1 % to pellets. According to Statistics Finland, in North Karelia there were 4751 one-dwelling and two-dwelling houses, 785 terraced houses and 229 blocks of flats using oil heating as their primary heating source in 2020. The goal of North Karelia is to phase out fossil oil in heating completely by 2030, so there is still plenty of work to do to reach the goal.

There is also 15 million € allocated to support local authorities, parishes, and associations to phase out oil heating in buildings. For them, the aid is given as a percentage of the investment costs, 20 % to 25 %. The buildings involved are larger, which means the investment costs in most cases are between 50,000 € and 150,000 €. In 2018 in North Karelia, 92% of the municipality-owned buildings were heated by district heating. The rest of the buildings were heated with decentralized heating systems, of which the most common was light fuel oil. In total 45 municipality-owned buildings used light fuel oil for heating in 2018.

According to the Energy consumption of municipality-owned buildings assessment made as part of the CLEAN project, the North Karelia region should focus on renewable energy promotion and energy saving actions in municipality-owned buildings. According to the assessment, the focus should particularly be paid on actions which reduce the use of light fuel oil in decentralized heating systems and decrease the specific heating coefficient of buildings.

Home office tax deduction

In Finland, the society supports working from home in the form of tax deductions. The Tax Administration offers a special home office deduction that can be used if a person works a substantial amount at home. The deduction can be formula-based or based on the actual expenses incurred. The home office deduction can be used to cover the increased cost of electricity and heating when working from home. The amount of the workspace deduction is determined by the number of days worked remotely. In 2020, the maximum formula-based home office deduction was 900 €. This deduction can be claimed if the person works remotely more than 50 % of all the working days in a year. If the person works remotely 50 % or less of all the working days a year, 450 € can be deducted. If the person works from home only occasionally, 225 € can be deducted. The standard workspace deduction is easy to make and can be claimed even if the person does not have a separate workspace in use at home. The person neither needs to provide any evidence to claim this deduction.

If needed, one can also deduct actual workspace expenses. This is the case if the expenses of remote working exceed 900 € a year. In this case, one must provide receipts for all purchases made. There is no ceiling for the maximum amount claimed.

In 2020, the number of people claiming for the home office deduction quadrupled compared to 2019 and 87,1 % of the people claimed for the 900 € deduction. This shows that people have found the support mechanism helpful to assist in covering the costs of remote work.

In Finland many people share their time between home, office, and summer house and in the new working culture, one can flexibly work online from any of these locations. Smart modern building service technology could help to save energy in the new working environment for example by lowering temperature and ventilation of an empty office space and switching back to normal when the space is in use. If this technology is taken into use in a big scale, even with small adjustments, the overall energy savings can be remarkable. The challenge is to familiarize people working in the field of technical building services with the possibilities of the smart technology.

The North Karelia Municipal Education and Training Consortium Riveria established LVISKA smart renewable energy based building automation learning environment in 2021 with the help of ERDF and ESF funding. The learning environment ensures up-to-date, work-based and multidisciplinary building services engineering education in the region. The learning environment uses renewable energy sources and it enables to simulate the impact of automation on energy consumption of buildings. The learning environment will promote low-carbon building automation solutions in North Karelia, both in public and in private sector and it is for the benefit of the Riveria students but also North Karelian municipalities and enterprises.

The budget to establish the LVISKA learning environment was 264 129 €, of which 184 890 € ERDF funding. In addition, the North Karelia Municipal Education and Training Consortium Riveria is receiving funds for developing multidisciplinary vocational education in LVISKA with the budget of 99 600 €, of which 69 720 € ESF funding. The project to establish the LVISKA learning environment was ongoing between 1.1.2020 and 31.12.2021 and the project to develop multidisciplinary vocational education in LVISKA is ongoing between 1.8.2020 and 31.5.2022. LVISKA employs four people part-time. Most of the teaching is done online.
Smart building engineering technology is needed to meet the energy saving and energy efficiency targets of the European Union. The goal of the North Karelia Municipal Education and Training Consortium Riveria is to use the LVISKA learning environment not only for the benefit of the students of the institution but also to train staff members of the North-Karelian municipalities and enterprises in smart low-carbon building energy and automation solutions. The LVISKA learning environment is an example of one method to increase the awareness regionally on smart building engineering technology solutions and their potential to save energy and to cut emissions.

Opportunities for new policy instruments

The Regional Council of North Karelia will address the Regional Strategic Programme for 2022-2025 (POKAT2025) as part of the CLEAN Additional activities project focusing on issues relating to energy efficiency and the use of renewable energy resources in the built environment. POKAT2025 was approved by the Regional Council Assembly on the 13th of December 2021. POKAT2025 acknowledges the need for locally produced energy based on renewable sources and improving the energy-efficiency and the reliability of energy supply in the region The implementation of POKAT2025 will continue in 2022 in thematic working groups of regional stakeholders that will focus on the core themes of the programme. Climate and energy is one of the themes of the thematic working groups. The learning outcomes of the CLEAN project will be considered in the work of the Climate and energy working group for the benefit of the region.

3.9. Savinjska Region, Slovenia

Support measures in the context of COVID 19

Partners are expected to speak about concrete examples of 'support measures' identified as 'inspiring' addressing local and/or regional, national authorities supporting energy efficiency in buildings in the context of COVID 19.

The National Recovery and Resilience Plan will also provide funding for the Green Transition development area, which includes the following components:
1. Renewable energy and energy efficiency in the economy.
2. Sustainable renovation of buildings.
3. Clean and safe environment.
4. Sustainable mobility.
5. Circular economy - resource efficiency.

The Green Transition will contribute to achieving the goals of the Comprehensive National Energy and Climate Plan of the Republic of Slovenia and commitments to achieve climate neutrality, which will be achieved by supporting reforms and investments in energy efficiency, renewable energy sources and sustainable mobility. Components 1 and 2 focus primarily on energy efficiency.

Component 1: Renewable energy sources and efficient energy use in the economy

Reforms and investments of this component will contribute to raising the share of renewable energy sources (hereinafter: RES) in gross final energy consumption, improving energy efficiency and reducing greenhouse gas emissions in the economy. The implementation of reforms will facilitate the implementation of investments to promote the use of RES (district heating systems, geothermal energy and hydropower), to strengthen the electricity distribution network and to improve the material and energy productivity of the economy. 206 million EUR is planned for this component, of which 46 million EUR is grants.
Planned reforms:
- the adoption of the Renewable Energy Promotion Act (2022),
- adoption of the Electricity Supply Act (2022),
- Rules for the establishment and operation of the regulatory sandbox (end of 2022),
- adoption of the BIM (Building Information Modeling) Action Plan (end of 2021),
- the establishment of a system to promote energy management in enterprises,
- Adoption of an Action Plan to establish a pilot scheme for the ETS (greenhouse gas emission allowance trading system).

Component 2: Sustainable renovation of buildings

Reforms and investments of this component are aimed at improving the energy efficiency of buildings in the public sector, which will contribute to achieving the sectoral objectives of the National Energy and Climate Plan in this sector. The measures thus encourage the recovery of the Slovenian economy due to investments in the construction sector. 86.05 million EUR grants is planned for this component.
Planned reforms:
- Adoption of the Long-Term Building Energy Renovation Strategy (LBERS) 2050 (first quarter of 2021),
- a list of buildings suitable for renovation (end of 2021),
- Adoption of the legal basis for the establishment of a systemic financial source for the energy renovation of buildings in the public sector (end of 2023).

Opportunities for new policy instruments

Partners are expected to draw some conclusions based on the lessons learnt and to reflect on actions to be translated into policy instruments.

Slovenia is also very much in favor of renovations and investments to increase energy efficiency in buildings and, regardless of the Covid situation, constantly encourages and supports the increase of energy efficiency of buildings, both public and private, as well as in the economy. It does this through public tenders for grants, with favorable funding for entrepreneurs and also with reimbursement of investment costs for households. It is expected that public tenders for energy rehabilitation and energy efficiency will be published in the future as well.

The "ZERO 500 Program" project, which is aimed at low-income households facing energy poverty, is also being implemented. Based on a public call, the Eco Fund will grant non-refundable financial incentives to eligible investors, amounting to 100% of the eligible investment costs for the implementation of investments in energy efficiency measures. A non-repayable financial incentive may be granted for investments in the following measures:

- thermal insulation of the roof and / or ceiling;
- thermal insulation of the facade;
- installation of energy efficient windows and / or entrance doors;
- replacement of the hot water treatment system with a water heater with solar energy receivers;
- replacement of an inefficient hot water treatment system with a heat pump water heater;
- installation of local ventilation with waste air heat recovery.