



# **Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment**

December 2020

## Acknowledgments

Sashe Panevski is the main author of this report. Oleg Dzioubinski of the UNECE Sustainable Energy Division and Aleksandar Dukovski, Chair of the UNECE Group of Experts on Energy Efficiency contributed to the report through their review and comments. Valuable contributions to the report were provided by respondents to project surveys and interview participants, in particular: Biljana Cherepnalkoska, Project “Creating conditions for the implementation of ESCO projects”; Daniela Trpkovska, Municipal Network for Energy Efficiency (MOMEE); Ivan Petrovski, Regional Environmental Center; Jasminka Dimitrova Kapac, MACEF; Konstantin Dimitrov, MACEF; Martin Krusharov, HAS Engineering; and Zarko Ilievski, MOMEE.

## Contents

Acknowledgments.....	i
Executive Summary.....	vi
Introduction .....	1
1. Analysis of the environment that MSMEs working in the area of energy efficient products and services and renewable energy equipment in North Macedonia face as a result of the Covid-19 crisis	5
1.1. Methodology.....	5
1.2. General impact of COVID-19 crisis on MSMEs.....	7
1.3. Impact of working environment on MSMEs in North Macedonia as a result of the Covid-19 crisis	11
1.4. Overview of specific conditions MSMEs in North Macedonia face in the new working environment .....	18
2. Governmental measures.....	19
3. Best practices in the area of energy efficiency relevant to MSMEs response to the Covid-19 crisis and post-crisis recovery in North Macedonia.....	24
3.1. Energy efficiency equipment in the buildings sector: Hotel management systems.....	24
3.2. Energy efficiency equipment in the industry sector: Inspection and reconstruction of compressed air systems.....	25
3.3. Replacement of conventional vehicle fleet with electric vehicles.....	27
3.4. Energy efficiency in energy generation – Development of Organic Rankine Cycle unit .....	28
4. Best practices in the area of renewable energy relevant to MSMEs response to the Covid-19 crisis and post-crisis recovery in North Macedonia.....	30
4.1. Innovative filter unit with installation of wind turbine and photovoltaics.....	30
4.2. Transformation towards 100% “green” company .....	31
4.3. Development of solar dryers for vegetables and fruits .....	32
5. Practical measures, opportunities, and guidelines for MSMEs delivering energy-efficient products and providing renewable energy equipment on access to financing, markets, and advanced technologies in North Macedonia .....	33
5.1. Practical measures for MSMEs delivering energy efficient products and services in getting access to markets, financing, and advanced technologies .....	33
5.2. Practical measures for MSMEs providing renewable energy equipment in getting access to markets, financing, and advanced technologies.....	35
5.3. Opportunities for repurposing of MSMEs in the aftermath of the Covid-19 crisis .....	36
5.4. Guidelines to MSMEs delivering energy-efficient products and providing renewable energy equipment on access to financing, markets, and advanced technologies in North Macedonia.....	38
Conclusions .....	40

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

---

Recommendations to the Government of North Macedonia in creating an enabling environment through appropriate policies and legislation for MSMEs to encourage delivery of energy efficient products and services and provision of renewable energy equipment .....	42
References .....	44
Annex I. Questionnaire for the impact of COVID-19 on the micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment.....	45

## List of Figures and Tables

Figure 1 Number of active business entities by sections of activity and by size (2019).....	3
Figure 2 Impact on the COVID-19 pandemic on day-to-day operations.....	8
Figure 3 Impact of COVID-19 on enterprise revenues .....	9
Figure 4 Resilience of enterprises .....	10
Figure 5 Impact of COVID 19 on the resilience of MSMEs.....	11
Figure 6 Measures taken by the enterprises in response to the pandemic .....	12
Figure 7 Mode of operation for MSMEs during restrictive measures .....	13
Figure 8 Current mode of operation.....	13
Figure 9 Priority government support measures identified by enterprises .....	14
Figure 10 Type of supporting measures needed from the Government.....	15
Figure 11 Change in visitors in stores since the beginning of the pandemic.....	16
Figure 12 Time spent at home since the beginning of the pandemic .....	17
Table 1. Definition of MSME in Republic North Macedonia.....	2
Table 2. Active entities by size and the share .....	2
Table 3. Results from the Compressed air system assessment at Cementarnica Usje .....	26
Table 4. Measure: Replacement of old streetlights with LED in Makedonska Kamenica.....	37
Table 5. Measure: Replacement of old streetlights with LED in Radovis .....	37

## List of Acronyms

BIM – Buildings Information Modeling

CSP - Concentrated solar power

DBNM – Development Bank of North Macedonia

EBRD – European Bank for Reconstruction and Development

EE – Energy Efficiency

EU – European Union

EUR – Euro

IEE – Industrial Energy Efficiency

ILO – International Labour Organization

MACEF – Macedonian Center for Energy Efficiency

MKD – Macedonian Denar

MOMEE – Municipal Network for Energy Efficiency

MSME – Micro-, Small and Medium Enterprises

NGO – Non-governmental Organization

NPL – Non-performing Loan

ORC – Organic Rankine Cycle

p.a. – per annum

PE – Public Enterprise

PPP – Public Private Partnership

R&D – Research and development

RE – Renewable Energy

REC – Regional Environmental Center

SSO – State Statistical Office

UN – United Nations

UNECE - United Nations Economic Commission for Europe

UNIDO - United Nations Industrial Development Organization

VSD – Variable Speed Drive

WHO – World Health Organization

## Executive Summary

The role of micro-, small and medium enterprises (MSMEs) in delivering energy-efficient products and in providing renewable energy equipment can become crucial in the post-Covid-19 recovery phase if they are provided with necessary incentives. This can be one of the ways to restart MSMEs or even to create new ones when job opportunities are scarce. MSMEs can benefit from clear guidelines on access to financing, access to markets, access to advanced technologies, and a favorable environment created by proper government policies and legislation. They will also benefit from concrete examples of successful implementation of measures by MSMEs, including repurposing that led to significant economic gains. In Phase 1 of the UN Development Account project “Global Initiative towards post-COVID-19 resurgence of the MSME sector”, United Nations Economic Commission for Europe (UNECE) has developed the Guidelines and Best Practices for Micro-, Small and Medium Enterprises in Delivering Energy-Efficient Products and in Providing Renewable Energy Equipment. The report presents examples of best practices in the energy efficiency sector and in the area of renewable energy relevant for MSMEs' response to the Covid-19 crisis and post-crisis recovery, as well as case studies on practical measures for MSMEs in getting access to markets, financing, and advanced technologies. It provides guidelines to MSMEs on access to financing, markets, and advanced technologies and recommendations to Governments for developing policy guidelines and establishing financial incentives schemes.

Countries of the UNECE region can benefit from customization of the Guidelines and Best Practices to their national circumstances. North Macedonia is one of the pilot countries for such customization that takes into consideration specific conditions of the country. This study includes analysis of the environment in North Macedonia that MSMEs face as a result of the Covid-19 crisis; best practices in the area of energy efficiency (EE) and renewable energy (RE) implemented in North Macedonia that show how MSMEs may respond to the current challenge or similar challenges in the past; measures that MSMEs in North Macedonia can undertake in delivering energy efficient products and in providing renewable energy equipment that would help them restore business confidence; and recommendations to the Government of North Macedonia in creating enabling environment for MSMEs to facilitate an economic recovery that would be in line with sustainable development goals.

In North Macedonia, the severe health crisis caused by COVID-19 has forced the Government to introduce drastic measures such as lockdown, shutdown, quarantine, and restriction to mobility, which in turn affected the business environment. Most of the MSMEs had a significant impact from the pandemic and struggled to keep their operations. Immediate measures were necessary since the

companies were not ready and were insecure about their response due to background knowledge of the virus and lack of certainty in projections. MSMEs responded to the crisis with a partial operation (38%), work from home (21%), business as usual (31%), and one of ten companies stopped their operations. 14% of the MSMEs managed to diversify their production to respond to a service that is in higher demand due to the crisis. Due to the lack of means for the MSMEs to fight the pandemic, the government also introduced a set of measures that included no-interest credit lines and subsidies for employees' salaries.

These are the main findings for North Macedonia from the analysis in the report for the MSMEs in delivering energy-efficient products and providing renewable energy equipment to increase their capabilities to overcome the crisis: increasing the use of innovation funds and programmes; increase the use of preferential loans for EE and RE; creating partnerships for easier access to supplies, resources, and markets; increasing online visibility (introducing digital stores, online technical support, social media presence); organization of training for the employees and/or for students and professionals; repurposing of MSMEs towards highly demanded services in the new working environment because of the Covid-19 crisis.

## Introduction

United Nations Economic Commission for Europe (UNECE) is one of the partners implementing UNDA project “Global Initiative towards post-COVID-19 resurgence of the MSME sector”. The overall goal of the project is to strengthen the capacity and resilience of micro-, small and medium enterprises (MSMEs) in developing countries and economies in transition to mitigate the economic and social impact of the global COVID-19 crisis. More specifically, the UNECE part of the project will assist the MSMEs in member States to utilize effectively developed Guidelines and Best Practices for Micro-, Small and Medium Enterprises in Delivering Energy-Efficient Products and in Providing Renewable Energy Equipment.

The role of MSMEs in delivering energy efficient products and in providing renewable energy equipment can become crucial in the post-Covid-19 recovery phase if they are provided with necessary incentives. This can be one of the ways to restart MSMEs or even to create new ones when job opportunities are scarce. MSMEs can benefit from clear guidelines on access to financing, access to markets, access to advanced technologies, and a favorable environment created by proper government policies and legislation. They will also benefit from concrete examples of successful implementation of measures by MSMEs, including repurposing that led to significant economic gains. In Phase 1 of the project, UNECE has developed the Guidelines and Best Practices for Micro-, Small and Medium Enterprises in Delivering Energy-Efficient Products and in Providing Renewable Energy Equipment. The report presents examples of best practices in the energy efficiency sector and in the area of renewable energy relevant for MSMEs’ response to the Covid-19 crisis and post-crisis recovery, as well as case studies on practical measures for MSMEs in getting access to markets, financing, and advanced technologies. It provides guidelines to MSMEs on access to financing, markets, and advanced technologies and recommendations to Governments for developing policy guidelines and establishing financial incentives schemes.

Countries of the UNECE region can benefit from customization of the Guidelines and Best Practices to their national circumstances. North Macedonia is one of the pilot countries for such customization that takes into consideration specific conditions of the country. This study includes analysis of the environment in North Macedonia that MSMEs face as a result of the Covid-19 crisis; best practices in the area of energy efficiency and renewable energy implemented in North Macedonia that show how MSMEs may respond to the current challenge or similar challenges in the past; measures that MSMEs in North Macedonia can undertake in delivering energy efficient products and in providing renewable energy equipment that would help them restore business confidence; and recommendations to the

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

Government of North Macedonia in creating enabling environment for MSMEs to facilitate an economic recovery that would be in line with sustainable development goals.

In North Macedonia, the severe health crisis caused by COVID-19 has forced the Government to introduce drastic measures such as lockdown, shutdown, quarantine, and restriction to mobility, which in turn affected the business environment. Most of the MSMEs had a significant impact from the pandemic and battled to keep their operations. Immediate measures were necessary since the companies were not ready and were insecure about their response due to background knowledge of the virus and lack of certainty in projections.

There is not a strict definition of micro-, small and medium enterprises (MSMEs) in the Republic of North Macedonia. However, all state administrative bodies use the definition and the term as per EU recommendation 2003/361. The only difference in the domestic legislation is differences in the criteria related to the turnover and the balance sheet, but the staff headcount criteria are the same, which reflects the market size and possibilities. Therefore, according to the domestic legislation and the accepted statistical references, the definition of the MSMEs is presented in Table 1.

Table 1. Definition of MSME in Republic North Macedonia

	Number of employees	Annual turnover	Business assets value
Micro enterprises	<10	50,000EUR	/
Small Enterprises	<50	2 mil EUR	2 mil EUR
Medium enterprises	<250	10 mil EUR	11 mil EUR

(Source: Law on trade entities – Official Gazette Nos. 28/04, 84/05, 25/07, 87/08, 42/10, 48/10, 24/11, and 166/12)

Table 2 shows the active entities by size and the share of the MSMEs in the economy of the country.

Table 2. Active entities by size and the share

	Active entities	Share of the market [%]
Micro enterprises	51,800	68.24
Small Enterprises	22,579	29.74
Medium enterprises	936	1.23
Large enterprises	599	0.79
Total	75,914	100

(Source: “Number of active business entities, 2019”, State Statistical Office, 2020)

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

According to this, the share of MSME in the total number of entities in the country is 99.21%. MSMEs employ approximately two-thirds of all workforce in the country. This sector is the main driving force of the economy of the country. On the other hand, because of the nature of the MSME sector (the number of employees and the capital that they could accumulate), it is also the most vulnerable within the economy of a country. This big share of MSMEs in the labor and economy market, combined with their vulnerability, makes them the most affected parties in any crisis, including the COVID-19. Logically, a significant portion of the measures during the crisis should be aimed at MSMEs.

Due to the different impacts on specific sectors (for example, tourism was affected significantly more than other sectors), Fig. 2 shows the number of active entities by sector and by size. The most represented sectors in the country’s economy are the service sector and education and professional activities. In terms of numbers, MSMEs are dominant in every sector. The division of sectors shows also that the MSMEs related to energy-efficient products and in providing renewable energy equipment are no exception from this practice.

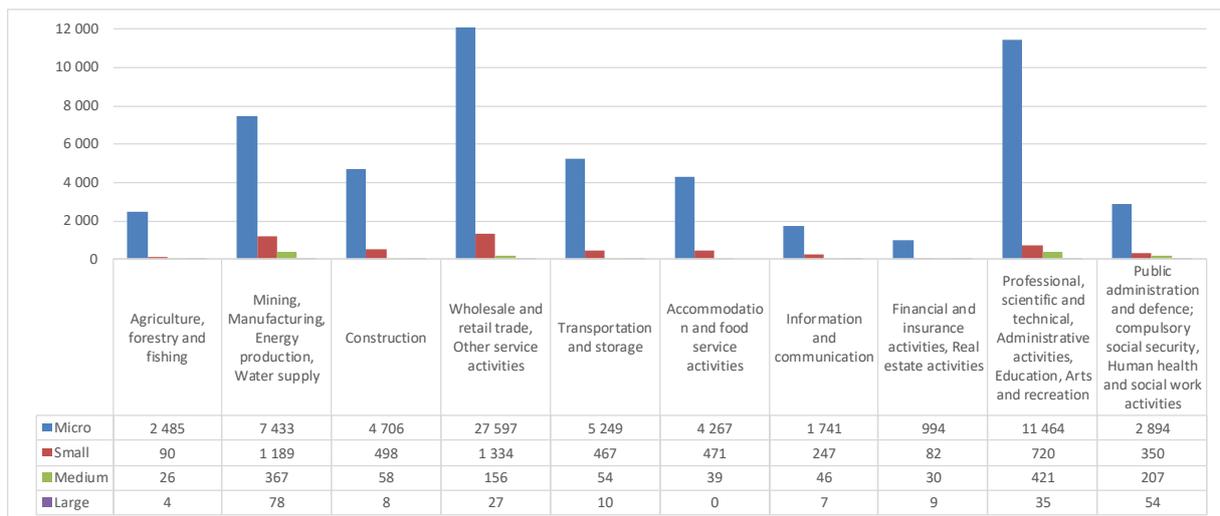


Figure 1 Number of active business entities by sections of activity and by size (2019) (Source: “Number of active business entities, 2019”, State Statistical Office, 2020)

In North Macedonia, MSMEs responded to the crisis with partial operation (38%), work from home (21%), business as usual (31%), and one of ten companies stopped their operations. 14% of the MSMEs managed to diversify their production to respond to a service that is in higher demand due to the crisis. Due to the lack of means of the MSMEs to fight the pandemic, the government also introduced a set of measures that included no interest credit lines and subsidies for the wages of the employees. The MSMEs faced many problems during the crisis. lockdowns and shutdowns were enforced which affected the business as usual scenario. People stayed at home and customer numbers for the companies lowered. The companies needed to organize their work schedules remotely and working

at home was necessary which in turn affected the production and the ability of the MSMEs to respond to their contractual obligations, which means delivering products. On the other hand, the closure of the borders in the country affected the supply of materials process. The MSMEs were not prepared to face the consequences of the immediate crisis and especially were not prepared for a prolonged effect of the pandemic.

The role of MSMEs in delivering energy-efficient products and in providing renewable energy equipment can become crucial in the COVID-19 pandemic and the post-COVID-19 recovery phase. According to the figures about the change of operations, it is clear that the MSMEs in delivering energy-efficient products and in providing renewable energy equipment need to be provided with necessary incentives to fulfill its crucial role. MSMEs can benefit from clear guidelines on access to financing, access to markets, access to advanced technologies, and a favorable environment created by proper government policies and legislation, which is the main focus of this study. The big share of MSMEs in the labor and economy market, combined with their vulnerability, makes them the most affected parties in any crisis, including the COVID-19. Logically, a significant portion of the measures during the crisis should be aimed at MSMEs. However, except for some “labour protection schemes” there is no focused support for MSMEs that are affected by the crisis.

## 1. Analysis of the environment that MSMEs working in the area of energy efficient products and services and renewable energy equipment in North Macedonia face as a result of the Covid-19 crisis

### 1.1. Methodology

The overall objective of the study is to develop a rapid assessment of the situation of the MSMEs in North Macedonia, the status of the potential of the companies to invest in energy efficiency (EE) and renewable energy (RE) improvements in their business, as well as to give recommendation in the improvement of the investment environment for these technologies in the crisis period and the recovery period. In this context, a better understanding of the company's investment decisions in EE and RE measures and their key determinants is necessary to design appropriate policy pathways and appropriate actions to support and maintain the growth of the EE/RE sectors.

The methodology used in this study includes the following tools and approaches:

#### **Collection of primary data through a “MSME COVID-19 effects” survey**

In the one-month period, an “MSME COVID-19 effects” survey (see Annex I) was conducted through an online survey form distributed through the industry sectors, chambers of commerce, and other stakeholders interested in EE and RE initiatives. This survey was conducted anonymously, and the data gathered was analyzed to remove discrepancies and aggregate answers. Because of the short and limited timeframe when the survey was conducted, it managed to receive 34 responses from companies classified as MSME in North Macedonia. The share of MSME surveyed consists of 50% of industrial enterprises, 20% service companies, 20% intellectual/knowledge providers, and 10% associations / civil society organizations. Additional information was gathered from larger enterprises. However, those data entries were used for the general-purpose analysis of the overall investment environment in the crisis. While it is not claimed that this data is fully representative, the response rate of the survey with the additional information gathered from the focused interview process secures sufficient information to develop an appropriate analysis of the situation.

#### **Collection of primary data through interviews with selected MSMEs**

For this study, 11 in-depth interviews were conducted, with a wide spectrum of companies in the manufacturing, intellectual services, and hospitality sectors. Along with the questions pertinent to the represented sector, interviewees were also asked about the additional financial needs imposed by the

broader effects of the Covid-19 crisis and about potentials in investments in EE and RE during/post-crisis period. This interview process was crucial to gather qualitative information that would supplement the quantitative data received from the survey. The information collected is also used in defining recommendations to enable a better investment environment for EE and RE in MSMEs in North Macedonia.

#### **Collection of secondary survey data**

For various parts of the study, two other publications were drawn upon: “The impact of the COVID-19 pandemic on enterprises in North Macedonia” done by ILM/EBRD survey in 2020 (Enterprise survey ILO/EBRD) (328 enterprises were surveyed in 4 months) and “COVID-19 and the World of Work: Rapid Assessment of the Employment Impacts and Policy Responses. NORTH MACEDONIA” done also by ILO/EBRD in 2020. The surveys noted here were used in conjunction with the survey conducted within this project to clarify the effects that the COVID-19 crisis has on the revenue streams, operation mode, production and in general, on the work environment, particularly because of delivering energy-efficient products and providing renewable energy equipment.

#### **Desk analysis**

While at present the global, let alone domestic, literature is yet scarce in a rigorous assessment of Covid-19’s impact on the investment environment of MSMEs with regards to EE and RE investments, the few available reports are used throughout the analysis either to compare the global and local expectations or to cross-reference expected effects in North Macedonia.

#### **Collection of administrative data sources**

Limited and selected administrative data were collected from the Government to obtain an initial impression of the effects of the crisis on the MSMEs. Administrative data have also been collected on the planned and executed fiscal spending from the Government, Ministry of Finance, as well as for the particular subsidies for the industry from the Ministry of Economy. The State Budget and its supplement, as well as all Government decrees since the proclamation of the state of emergency have also been a vital source of information. Data pertinent to the labour market response and the execution of the government subsidies for employment retention measures have been collected from various sources.

## 1.2. General impact of COVID-19 crisis on MSMEs

The effects that the COVID-19 pandemic has on the economic and productivity growth of the MSMEs was clearly outlined in the UNECE publication “Guidelines and Best Practices for Micro-, Small and Medium Enterprises in Delivering Energy-Efficient Products and in Providing Renewable Energy Equipment”. It showed how MSMEs respond to the different measures and uncertainties that arise from the mix of restrictions, government measures, and the behavior of the people. Investment cycles are broken for some of the MSMEs and substituted by emergency measures to keep the businesses afloat while some of the MSMEs are seeing how the markets change and try to adapt their business model to face a new reality. Within this study, these effects are analyzed in a local context.

According to the World Bank’s 2020 Regular Economic Report (RER) “An Uncertain Recovery” published this fall, North Macedonia is in its deepest recession since 2001 affecting all economic sectors and activity.

The 3.6 percent growth achieved in 2019 was reversed by mid-2020 and by June 2020 growth was lowered by 6.4 percent. The RER specifically identifies the downfalls in the following sectors:

- manufacturing – 16.1 percent (with growth in only a handful of areas);
- trade, tourism, and transport - 12.3 percent (specifically affected is the sector tourism where economic activities were suspended to none).

Consequently, the unemployment rate increased to 16.7 percent. By June, 17,690 people had lost their jobs since March - most due to the discontinuation of the short-term contracts. Bigger job losses were prevented by an emergency subsidy scheme to retain jobs by covering minimum salary and social contribution payments in the most affected sectors as explained below.

Concerning the growth, the RER notes that:

- the decline in private construction was offset by public investment in roads, contributing positively to growth;
- the sector of agriculture continued to grow and contributed to growth.

Some pharmaceutical companies have attempted to keep up with the changing circumstances and started to produce disinfectants. Besides, some apparel and textile companies converted to the production of facemasks, protective clothes, and similar goods, primarily for the health sector.

According to the *European Bank for Reconstruction and Development and the International Labour Organization Joint Task Force* report on “Rapid Assessment of the Employment Impacts and Policy

Responses” (2020), food and beverages services, retail, transport, warehousing, personal services, food manufacturing, construction, and related specialized activities, and services to buildings have been the most affected sectors in North Macedonia. According to the report three-quarters of employees and companies in North Macedonia have been hit, especially the self-employed and micro-businesses as they were either shut completely or had to drastically reduce their activity.

In recent years, averages of 40% of exports and 60% of imports have been made through small and medium enterprises, which have been affected significantly by this crisis. Consequently, the crisis also represents a threat to the trade deficit, which is mainly covered by exports. Another problem that worsened, even more, is the slowdown in freight transport, with delays across borders, even though freight transport is released from the usual travel bans imposed by countries in Europe and the region.

In North Macedonia, there are no official data that could provide a clearer picture of the state of the MSMEs or on the effectiveness of the economic and fiscal measures the Government has put out in four subsequent supporting measures cycles. Therefore, the “MSME COVID-19 effects” survey conducted for this study and the Enterprise survey (ILO/EBRD 2020) are used to observe the effects of the pandemic on MSME operations and investment opportunities.

According to the survey “MSME COVID-19 effects survey”, the COVID-19 crisis has affected 73 percent (Fig. 2) of surveyed enterprises (34 MSMEs), which reported financial losses and temporary suspension of business operations.

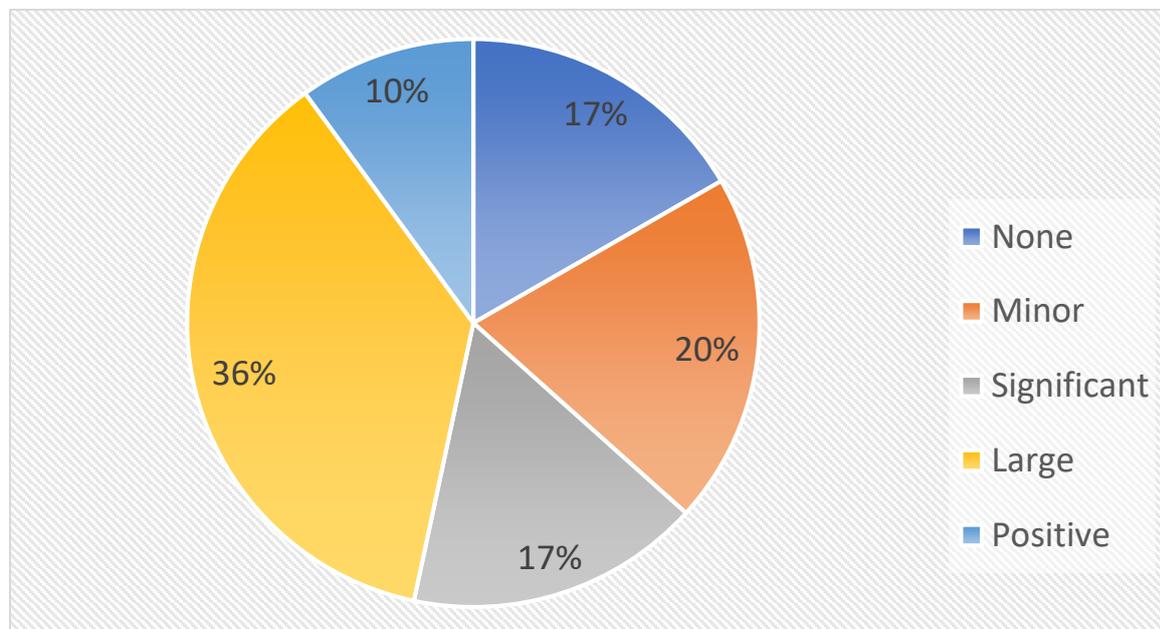


Figure 2 Impact on the COVID-19 pandemic on day-to-day operations (Source: MSME COVID-19 effects survey)

Fig. 3 corresponds to the survey conducted by ILO/EBRD in their Enterprise survey where the majority of the enterprises (82%) have been significantly affected by the pandemic and the subsequent

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

lockdowns, with observed revenue losses of more than 20 percent. 43% reported reduced revenues by 50% or more, and 28% reported revenue declines between 20 and 50%, while 11% had to completely close down their company temporarily. In ILO/EBRD survey, some of the MSMEs have reported an increase in revenues (3% of the surveyed companies), while another 10% did not have any noticeable effects on the revenue streams, this has differences in the “MSME COVID-19 effects survey” where 10% of the enterprises have reported positive impacts. In the subsequent interviews that were done with selected enterprises, it was clearly stated that the positive impacts that some of the MSME had were because of the introduction of the new product to the market or increase of demand for the current lineup of products/services offered (packaging boxes for freight transport, delivery services, and online marketing services). With regards to energy pricing, those enterprises whose production depended on natural gas had seen a steep decline in natural gas prices (Source: Eurostat ([nrg\\_pc\\_203](#))) during the first half of the year, which had a positive impact on the lowering the cost of production of their product.

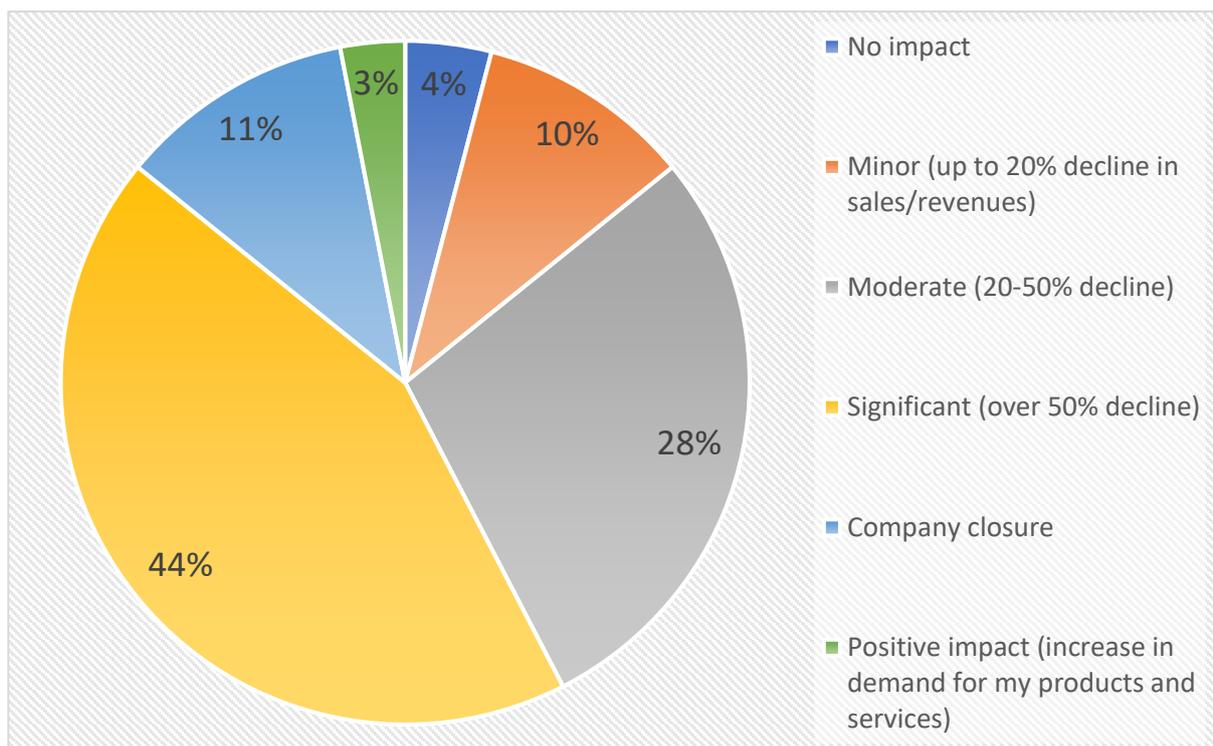


Figure 3 Impact of COVID-19 on enterprise revenues (Source: Enterprise survey ILO/EBRD)

In general, all sectors have reported a decrease in revenues, with transport, storage, hospitality, and food services were hardest hit by the restrictive measures, which was to be expected, given that most of their activities were severely affected by the lockdown (mid-March). Almost half of those businesses have experienced a decline in revenues by more than 50 percent and one-tenth have reported a complete shutdown. Enterprises that had the most significant vulnerability rate were the

microenterprises with 50 percent reporting that their revenues have declined more than half of the same period the previous year and 19 percent cited that business closure was imminent.

The pandemic crisis significantly affected the manufacturing of metal products, followed by transport and hospitality; construction sector reported the most closures, with 13% stated they were not operating during the period. Having in mind that more than two-thirds of the energy efficiency industry and one-third of the renewable energy companies are intrinsically linked with the construction sector, it can be assumed that the effects of the crisis are being observed in these sectors as well. Only two sectors - manufacturing of food, beverages, clothes, tobacco and wood and paper, and wholesale and retail trade - are reporting increased revenues (9% and 7%, respectively). This is expected due to increased demand for the products because of the anti-COVID measures and lockdowns imposed throughout the period.

Fig. 4 shows the resilience of companies to sustain the crisis. The decline in revenues differs by enterprise size. Micro-companies have been hardest hit by the crisis, with 43% of the companies stated that if the lockdown measures and restrictive policies persist, they would probably have to close their business within three months at the latest with 7% of businesses are expecting that they could survive less than a month.

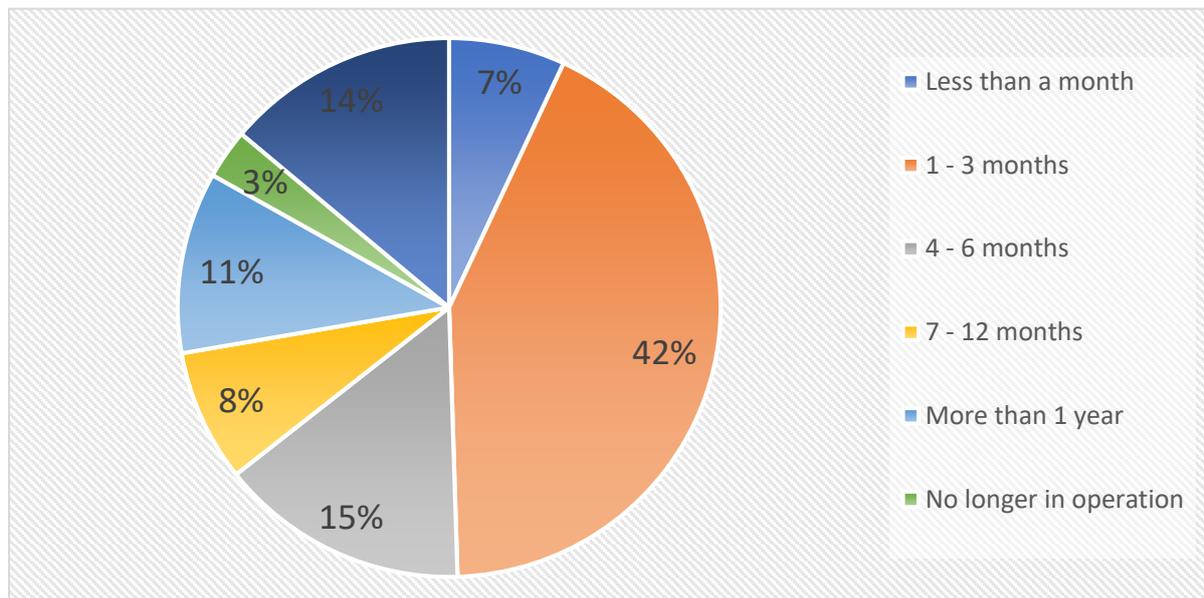


Figure 4 Resilience of enterprises (Source: Enterprise survey (ILO/EBRD))

A similar situation is observed in the MSME COVID-19 effects survey (Fig. 5), where 41 percent of MSMEs reported that the resilience of their company to withstand closure is very small. According to the interviews conducted, the micro-enterprises with less than 10 employees would find it difficult to maintain operations if lockdowns last more than 2 months. The main reason stated is the lack of capital to cover labour costs, need to repay loans, and difficulties in maintaining inventory/ supply issues.

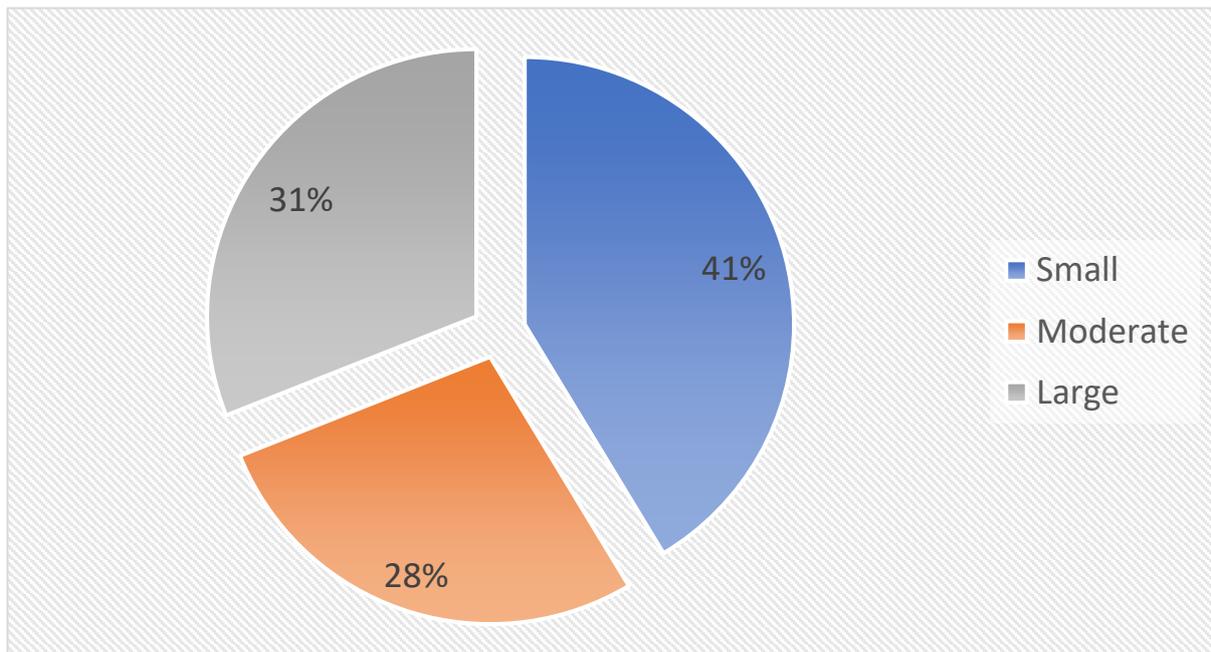


Figure 5 Impact of COVID 19 on the resilience of MSMEs (Source: MSME COVID-19 effects survey)

### 1.3. Impact of working environment on MSMEs in North Macedonia as a result of the Covid-19 crisis

In response to the changes in the work environment and operation mode, companies have taken various measures to adjust to the new situation.

Measures taken by the companies to adjust to the new work environment are presented in Fig. 6. The majority of companies opted for reduced working hours, which at first cannot be seen as a specific internal measure to adjust to the situation because it was imposed by the lockdown measures, which can lead to changes in operating procedures of the company. While the conditions on which reduction of working hours was imposed, nearly half of the companies responded in the interview process that they have begun introducing internal measures to increase productivity during their working hours. These measures were fully focused on the labour segment of the work and it is not related to the optimization of processes or investment in technology or specific EE or RE measure. Another 14% of

## Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

companies successfully adjusted to the new working environment and shifted their production in accordance with the new demand for products or services. The only internally induced adaptation to the new business environment because of the pandemic was seen in companies that shifted their production to provide supplies that are in overwhelming demand during the crisis (such as masks, cardboard boxes for shipping, and cleaning and disinfecting supplies).

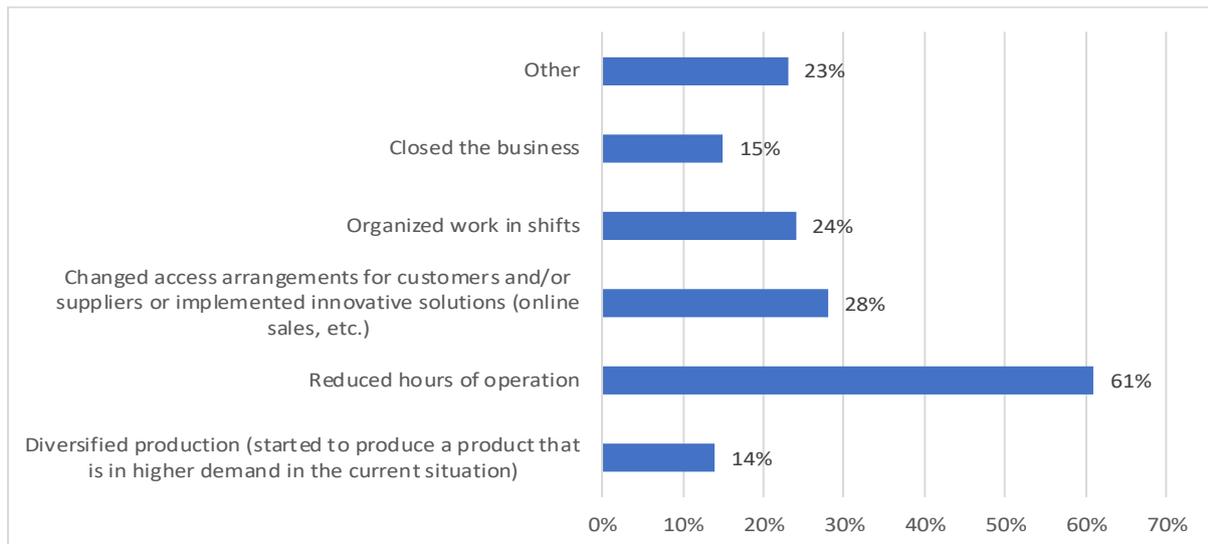


Figure 6 Measures taken by the enterprises in response to the pandemic (Source: Enterprise survey ILO/EBRD)

The COVID-19 crisis had an enormous influence on the MSMEs in the country. It changed the mode of operation, it affected the human resources and the finances, and large number of companies could not survive the changes. In order to analyze the new work environment, the impact of the crisis is considered in this section.

Fig. 7 shows that the enterprises surveyed cited that 31% of their workforce was fully engaged at their workplaces during the restrictive measures, mainly due to the operational processes of the company. Labour-intensive processes mainly manufacturing, and construction sectors required employees to be physically present to do their work. During the interviews, those enterprises pointed out that part of their staff could have changed their mode of operation either fully from home or at least partially, however because of lack of procedures and tools to do so they haven't proceeded to that option. More traditional business sectors find it difficult to adjust to the new working environment because they have not invested in information technologies and communication (ITC) tools necessary to enable different modes of operation. This was expressed as a concern during the interviews, and most of the enterprises will invest in ITC in the recovery period to increase their company resilience to a similar situation.

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

Enterprises that are mainly in the service sectors or provide intellectual services had adjusted faster than their traditional counterparts and either they have changed their mode of operation from home partially (38%) or fully (21%). These sectors have inherently adopted ITC technologies during their day-to-day operations before the crisis, and this situation just speeds the transitional period for them.

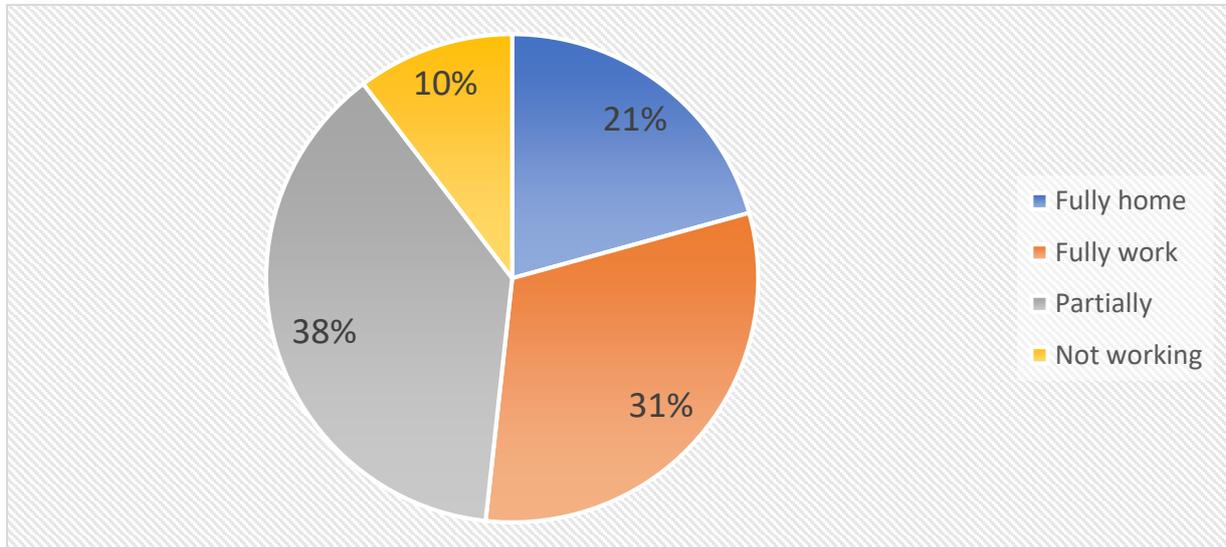


Figure 7 Mode of operation for MSMEs during restrictive measures (Source: MSME COVID-19 effects survey)

Similar data could be observed in the ILO/EBRD Enterprise survey. Fig. 8 shows the response in the operation mode of companies and their immediate adjustment to the crisis. Around one-third of the companies have continued to operate as usual. Another 15% continued operating but had introduced arrangements in working hours and physical presence of staff (including remote working), 41% of the companies were working partially, and 15% were no longer operating.

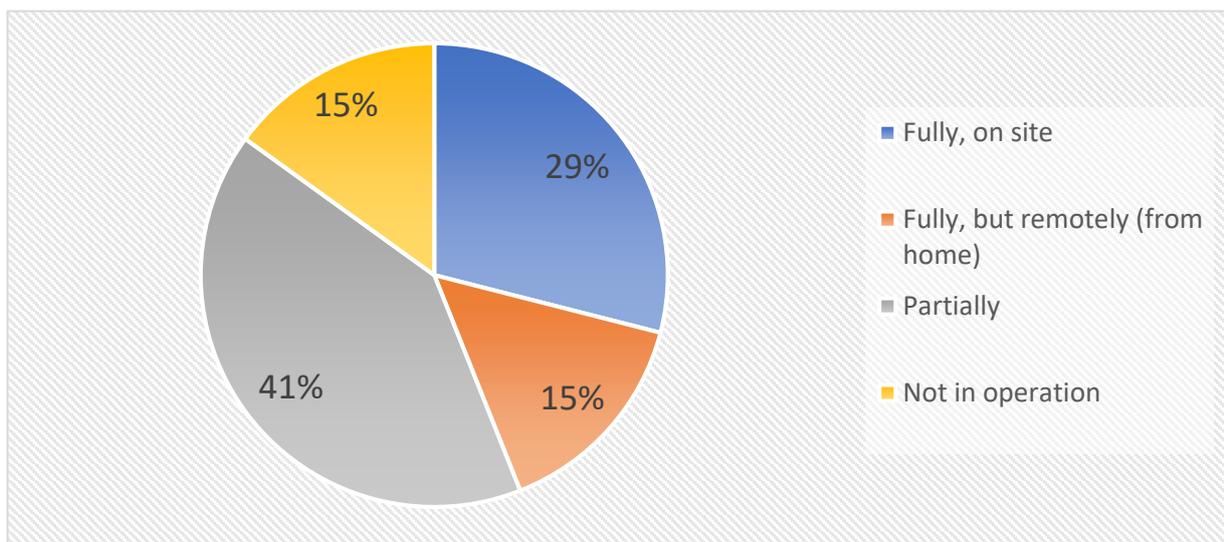


Figure 8 Current mode of operation (Source: Enterprise survey ILO/EBRD)

## Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

Fig. 9 shows the opinion of companies regarding the priority measures that should be taken by the government. It can be seen that the major problem that the MSMEs were facing are the wages of the workers, due to the slow adjusting to the new environment, and the implementation of measures that are not aimed at adjustment (partial working instead of distant working, not operating, etc.). The interest for more favorable loan conditions for companies is expressed by more than half of the surveyed companies, which leads to a conclusion that de-risking investments can increase the value proposition for the companies to invest in more sustainable operations.

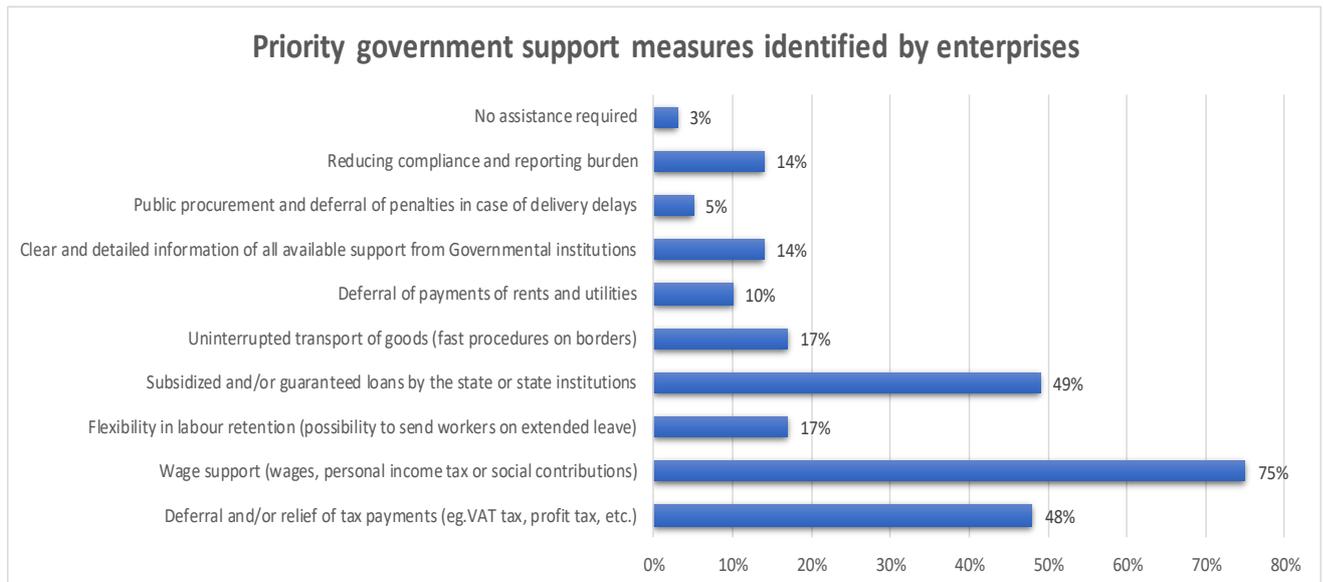


Figure 9 Priority government support measures identified by enterprises (Source: Enterprise survey ILO/EBRD)

Similar observations could be found in the following Fig. 10 where wage support would be the preferred assistance scheme received from the Government to mitigate some of the effects of the COVID crisis for their company. From an energy perspective, companies are not that concerned with operational expenses for utilities or investments in newer equipment because these “expenses” are strongly related to the demand that the companies have for their product and during regular operations. As the two surveys show, only 12% and 10% of companies respectively, see value in reducing utility payments or receiving subsidies that cover the operational costs of utilities. The same attitude towards the energy demand is cited during the conducted interviews with the companies, where they claim that energy costs are not of particular concern if they have a large reduction of work hours or significantly lower production in their companies. Therefore, investments in increasing energy efficiency and renewable energy supply are not a priority in these situations. This in turn shows

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

that stronger support measures or strict regulation standards are needed in order to encourage companies to invest in more sustainable energy supply and energy use.

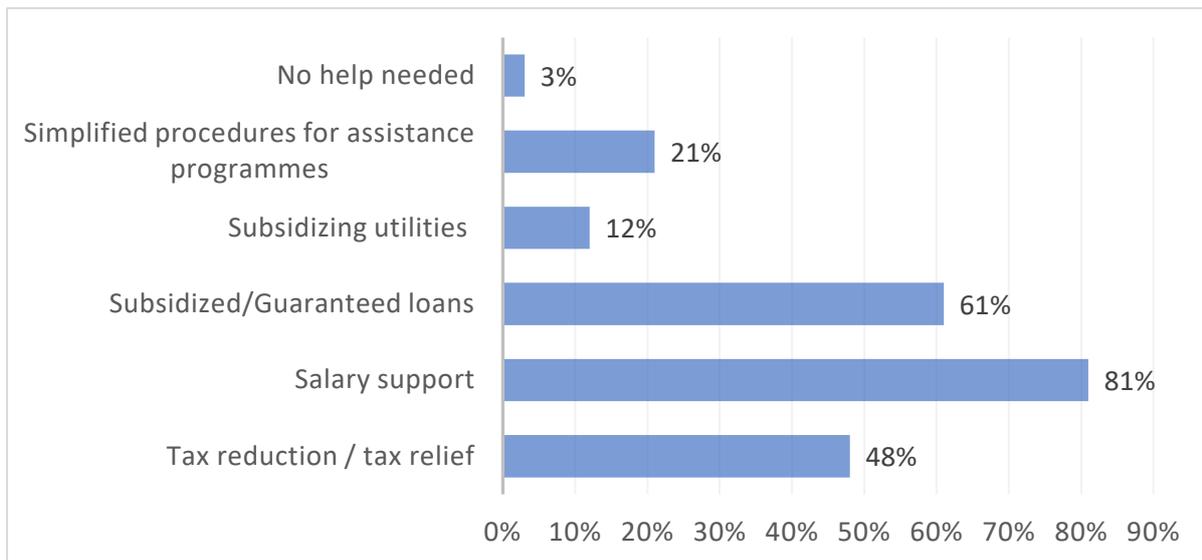


Figure 10 Type of supporting measures needed from the Government (Source: Enterprise survey ILO/EBRD)

In North Macedonia, despite the high energy intensity of the industry, energy prices usually do not have large impact on the cost of MSMEs' end products, and their share in the total costs is closer to the EU levels. The EU average for energy costs for the selected sectors typically constitutes 3-10% of total production costs (source: [report\\_ecofys2016.pdf \(europa.eu\)](#)). Only for the manufacturers of paper, building materials, and cement energy costs are typically more than 10% of production costs.

During the interview process, companies have expressed opinions that energy efficiency and renewable energy supply measures are typically introduced when the investment environment is not volatile and under pressure from external factors (like the COVID-19 crisis). Their views for low-/no-interest loans or guaranteed loans that do not have dedicated and specified use would be used as an operational capital primary, and investment in EE and RE would not be perceived as a viable option if there is no dedicated measure or support scheme for it.

The data from the Google COVID-19 Mobility Community Trends (Figs. 11 and 12), specifically for North Macedonia, show the changes of the new work environment from the aspect of the client, which is also an important factor for the adjustment of the companies.

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

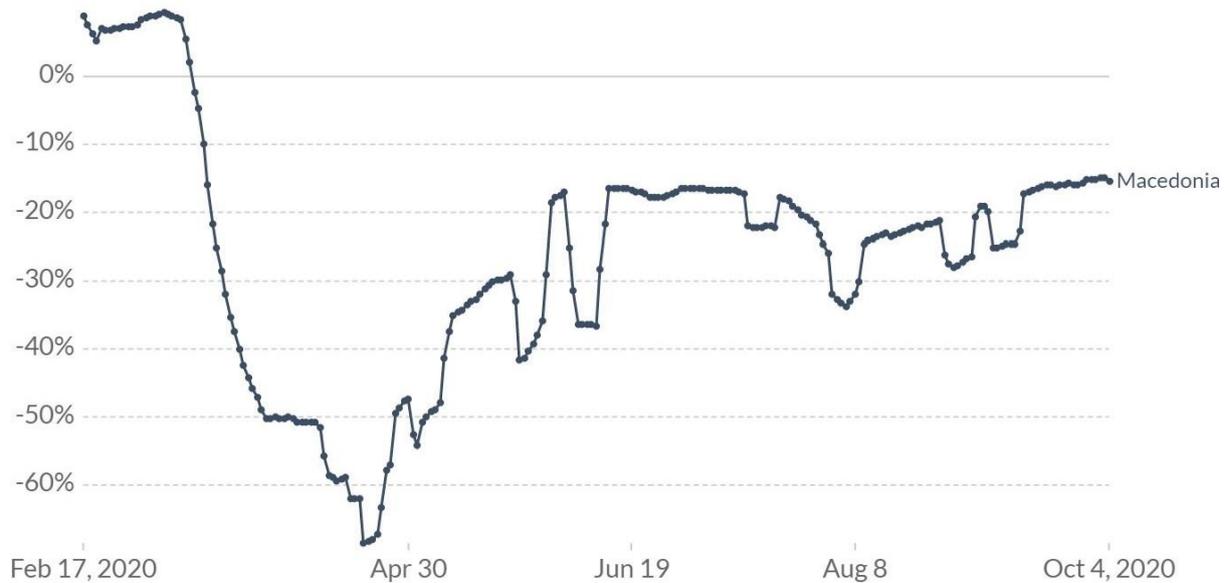


Figure 11 Change in visitors in stores since the beginning of the pandemic (Source: Google Community Mobility Report19 for North Macedonia)

In Fig. 11, there is a significant drop of visitors in stores at the beginning of the pandemic where lockdown measures were introduced, that over time started to grow. Fig. 11 presents both the effects of restricted movement and the effects of the lockdown. It is to be expected that if a new set of restrictions (in relation to a growing number of new cases) is imposed, similar effects on the movements of people/clients could be observed. This has one of the biggest impacts concerning the drop in revenues as well as to the resilience of MSMEs. The unpredictable working conditions make long-term planning riskier which in turn affects the willingness of the companies to invest in adaptive measures or to stay operational. Adaptive measures are crucially needed for the companies if they are to reach towards the clients and establish (because of the new market conditions) beneficial relationships. Those adaptive measures can be seen in most of MSMEs that were surveyed and interviewed during the data collection, where companies invested significantly more (with relations to pre-COVID environment) in their online presence, social media, and remote services that they could offer. This indicates that client needs are a priority with regards to services offered and are a driving force in adjusting the business practices of companies.

Fig. 12 shows the time spent by people at home. The conclusions are similar but there are some differences. The peak can be seen in the beginning of the pandemic, and then, when the initial shock and fear was overcome, the people got used to the new environment. The difference is that at the end of the curve, a new possible peak can be observed, with the intensification of the virus due to the

expected increased number of people contracting it. Still, since there is previous experience, it is expected that the reaction of the companies and the government will be faster and more efficient.

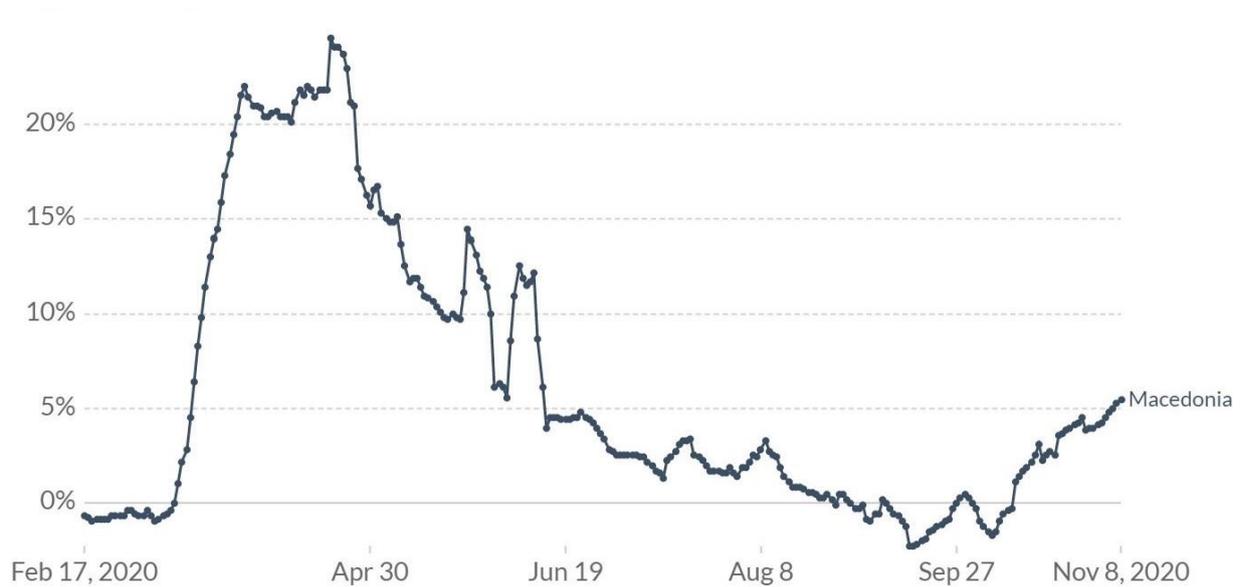


Figure 12 Time spent at home since the beginning of the pandemic (Source: Google Community Mobility Report<sup>19</sup> for North Macedonia)

Another aspect is the changing of the work environment for those sectors of the economy that could more easily adjust to using ITC technologies to continue working from home while restrictive measures are in force. Allowing a more flexible working environment enables the companies to adjust to situations while their operating procedures remain the same. Whether these companies will continue with the practice of a flexible work environment remains to be seen, even if global companies are supporting the switch towards it as a “new normal”.

The trend of changing the work environment can be seen also in Fig. 7 and Fig. 8, in a local context, where some of the companies surveyed changed their operational procedures to allow more teleworking. This can have a huge effect on energy efficiency and consumption in buildings, especially if the building now has multiple uses as homes and as offices at the same time it would require a different set of conditions to be fulfilled. The adjustability of the living space can lead to changes in lighting, ventilation, heating demand and it can also change the energy demand of the building and the overall energy demand curve. The effects of the pandemic in this particular case should be further analyzed because it can provide valuable input in defining future energy policies and for developing energy-related standards (including heating and lighting comfort in buildings).

#### 1.4. Overview of specific conditions MSMEs in North Macedonia face in the new working environment

The MSMEs faced severe financial problems due to the pandemic and the business climate is unfavorable. The reduction of costumers because of shutdowns and quarantines affected the companies and their income. Also, the closing of the borders created difficulties in gaining supplies and delivering the products.

MSMEs, because of their small size and resources, are unable to meet the changes of the environment Their resilience toward the effects of the crisis is unsustainable for longer periods and urgent governmental assistance was necessary, in form of no-interest loans and subsidies.

The prolonged duration of the crisis made the companies adjust to the changes. The distancing rules created reorganization of the workspaces. Teleworking is one of the safest ways to respond to the crisis, but in the case of production processes, it reduces the capacity of the companies to respond to the ongoing contractual obligations. Many of the companies are focusing only on the most important projects which results can be achieved through working from home.

Automation of the processes and distant control can improve the ability of the companies to meet their demand. With the implementation of advanced energy efficiency products and improvements of the production processes, the companies can respond to the new working environment. Due to the financial problems as well, companies need help to redesign their work environment and tailored governmental programmes are necessary to help the MSMEs through the crisis.

## 2. Governmental measures

The first official case of COVID-19 in the country was confirmed on 26 February 2020. Several emergency measures were introduced (including the lockdown of kindergartens and other educational institutions) in efforts to limit the spreading of the virus and to protect the most vulnerable groups of citizens. On 18 March 2020 a state of emergency was declared thus the legislative and executive power was vested to the government. This state of emergency lasted until 13 June 2020 due to the already scheduled early parliamentary elections, which were held on 15 July 2020. Within the state of emergency on several occasions, a curfew was introduced that included full lockdown on holidays and weekends (for example, during Easter). Restriction measures also included borders closure and imposing strict travel restrictions

The 26 April Google Community Mobility Report for North Macedonia highlights a fall of over 92 percent in visits and time spent in places such as grocery markets, pharmacies, restaurants, cafes, shopping malls, and movie theatres. The same could be observed for workplaces, where there was a reduction in the overall activity of 71 percent compared with the baseline.

After the appointment of the new Government on 30 August 2020, no new state of emergency was declared. However, the measures for balancing the impact of the COVID-19 continued.

Due to reduced economic activity, budget revenues decreased significantly in April and May, with a forecast annual decrease of 11.5 percent compared to the initial budget plan in 2020. At the same time, budget expenditures were increased due to the Covid-19 response resulting in a 6.8 percent of GDP budget deficit.

The governmental policies introduced aimed to prevent income loss and maintain the quality of life of citizens thus protecting jobs and provide liquidity for the most affected companies (including subsidizing private-sector wages and social contributions), loans at favorable terms and loan guarantees, etc.

To the date of the writing of this report, four packages of policy and economic measures were adopted. Each package was designed to deal with four prime risks: the risk of spreading an infection; economic risk including income/revenue loss, worsening of the quality of life of the most vulnerable citizens; the risk of impaired access to services; and the risk of the deterioration of the learning process. The first package was adopted right after the declared state of emergency in March 2020. The package provisioned direct financial assistance to support the liquidity of micro, small and medium-sized companies, whose economic activity has been most affected. 5.7 million EUR were made available by the Development Bank of North Macedonia. The maximum loan amount could not be higher than 90,000 EUR and the minimum loan amount could not be lower than 3,000EUR. Loans

were approved with a repayment period of up to 3 years including a 12 months grace period. The loans were designed as interest-free and without administration costs.

The second package was adopted on 31 March 2020. Additional 8 million EUR interest-free loans for micro-, small and medium enterprises were provided. A new measure was introduced to secure liquidity of the small and medium enterprises - 50 million EUR loan from the Development Bank of North Macedonia through commercial banks. The primary goal of this credit line was to provide fresh capital to support new projects, new employment, increased liquidity of the economy, and increased exports. To overcome the problems arising from the emergence of the COVID-19 virus, which directly affects the operations of small and medium enterprises, this measure will subsidize the interest rate of the Development Bank to the EIB, as well as the administrative cost of 0.5% which the Development Bank will calculate to the commercial banks through which the funds from this credit line will be placed. With this measure, the Development Bank of North Macedonia will offer an interest rate of 0% to the commercial banks, which in turn will go with lower margins for this credit line and will be able to offer interest rates of about 1.5% for the loans.

With the second package, the government introduced the financial support of the private sector employees. Subject to this financial support were the salaries of the employer-applicant for financial support for the months of April and May 2020 in the amount of a maximum of 235 EUR per month per employee, in proportion to the realized effective hours spent at work. The employers, legal entities from the private sector independently must be paid this minimum salary and retain the same number of employees by September 2020 to be entitled to this measure. Additionally, the enterprise must not pay dividends to the owners; as well as bonuses, annual awards, business success awards, etc. as well as have at least a 30% reduction in income compared to last year's average, i.e. the seasonal average for employers performing the seasonal activity.

Another important measure that was introduced with the second package was the monthly salary (cash allowance) for citizens who lost their jobs due to the crisis, in the amount of 50% of the average salary of the employee. Namely, citizens who lost their jobs due to the crisis, are entitled to monetary compensation every month in the amount of 50% of the average monthly net salary of the employee for the last 24 months.

The total value of economic measures taken by the government in the first and the second package is 200-250 million EUR or 2% of GDP.

According to the official report by the North Macedonia Development Bank presented on 12 May 2020 the funds from the credit line were exhausted by 6 April 2020. The processing of credit applications, according to the public call, was based on the principle "first-come, first-served".

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

---

A total of 738 companies employing 6,524 people have been granted credit applications. Out of the 738 companies whose credit applications have been approved, 77% or 565 companies have up to 10 employees, 21% or 155 companies have up to 50 employees while 2% or 18 companies have 18 employees.

According to the structure of the total approved applications, 373 companies with primary occupation - catering activity used the credit line in the amount of 3 million EUR. From the transport activity, 320 companies used the credit line in the amount of 2.3 million EUR. In the field of tourism, 43 companies used this credit line for a total amount of 252,000 EUR.

On 18 May 2020, the Government reviewed and approved the third package of economic measures. The following important measure were introduced to boost of the economy by influencing the citizens:

- 100 thousand citizens received a 150 EUR voucher for Macedonian products and services (value of this measure was 16 million euros);
- 100 thousand citizens received a 100 EUR voucher for domestic tourism;
- Financial support up to 100 EUR for youth under 30 years;
- VAT-free weekend for all citizens.

For almost all micro- and small enterprises, 31 million EUR of interest-free loans were secured through the Development Bank of North Macedonia for support of women, youth, and digitalization in business. The measure offered a 30% grant (non-repayable funds) for those companies that are run or founded by women or employ young people, are export-oriented, or introduce innovation and digitalization in their operations.

Furthermore, with the measure for state guarantee for commercial loans and customs debt securing, the government enabled financial resources to support start-ups and small and micro enterprises through commercial banks of 10 million EUR.

Additional 25 million EUR for the private sector - for new markets, competitiveness and modernization were secured as well as 1.6 million EUR for the development of innovative products and services through e-tools. The new measures also envisioned co-financing of events and conferences with 50% financial support from the state up to 500 EUR (measure total worth 245,000 EUR).

Specific measures were introduced for the agricultural sector including direct support of the agricultural sector with 5 million EUR through the Development Bank of North Macedonia - support of micro, small and medium enterprises that perform primary production, processors and exports of primary and processed agricultural products; an increase of the subsidizing of the green oil for farmers from 30% to 50% (measure value is 4.6 million EUR); support for grape processors for the production

of new products with 3.5 million EUR; 3 million EUR measure that should provide financing for start-up family wineries and farms.

The total value of the three packages approved by the government amounts is up to 550 million EUR or 5-5.5 percent of GDP.

With the measure “financial support of 240 EUR per employee” about 120,000 employed citizens and about 20,000 companies are supported with a total of 79.5 million EUR. Additional 26.8 million EUR were distributed to 309,000 citizens who received vouchers through the "buy at home" measure.

The fourth package was adopted on 27 September 2020 and it amounts to 470 million EUR itself. The measures for citizens envisioned in the third package continues. New 100 million EUR loans from the Development Bank of North Macedonia will be available to the small and medium enterprises. The new set of measures were introduced for the sector tourism, hospitality, and entertainment: salary support for tour guides (360 EUR per month); refund of the tourist tax for 2019; grants for travel agencies (500 travel agencies will be part of the measure with total value is 1.9 million EUR); grants for restaurants for weddings (total value of the measure 1 million EUR (grants from 3,000 to 10,000 EUR); reduce of the VAT from 18% to 10 % for the restaurant services (food and beverage services); extension of licenses to operate discos, nightclubs and companies in the transport community; grants for playgrounds for children in the amount of 1,000 to 5,000 euros will be provided for about 1,000 playgrounds (total value of this measure is 2.5 million EUR). The new measure was introduced specifically to support the craftworkers. The measure envisages a reduction of the VAT on their services and products from 18% to 5%. New 10 million EUR of financial resources are also available to medium and small enterprises for easier access to cheap financial resources, by taking part in the credit risk.

The Government of North Macedonia throughout the crisis period has developed sets of measures that reduce the impact of the pandemic on the business sector, especially for MSME on which the bulk of the economy depends. However, there has not been a structured support mechanism or programme that would specifically target investments of MSME into energy-related improvement through EE or RE measures. While such assistance is not high up on the priority list of the companies (as confirmed through the survey), the larger effects should be taken into account: investments in EE and RE increases the resilience of the companies through reduced operational expenses not just in the crisis period but in the recovery period as well; it helps enable an environment for the creation of new jobs in this sector by increasing the market demand of such services; it fosters innovation and creation of start-ups that have growth potential; enables knowledge transfer between academia to business and vice versa; reduces the energy demand of the industry sector and it changes the energy mix of the country; it kindles the corporate responsibility in MSME towards a cleaner environment

and climate change, and it sets a reference point of potential investment opportunities in the post-pandemic period.

The funds and loans allocated for the business sector so far are primarily focused on preserving the labour market and subsidizing lost revenues because of preventive measures taken place. This, while it is a just and valiant effort to tackle the negative effects of the crisis, shows a lack of forward-thinking policy to use the crisis to improve the general situation of MSMEs and to provide them with higher resilience for upcoming adverse situations.

It is worth pointing out that currently in North Macedonia there is no dedicated Energy Efficiency fund established nor there is any functioning facility where resources could be specifically distributed for use of MSMEs. The EE and RE primary legislation exists but does not induce confidence in investing in the sector or developing business models around it because of lack of secondary legislation, proper standards, and safeguards. These gaps should be addressed as soon as possible, for the sector to grow into an industry and help the economy of North Macedonia get out of the recession.

In the next chapters, positive examples of MSMEs' investments in EE and RE are presented, as well as general guidelines and recommendations for the next period.

### 3. Best practices in the area of energy efficiency relevant to MSMEs response to the Covid-19 crisis and post-crisis recovery in North Macedonia

#### 3.1. Energy efficiency equipment in the buildings sector: Hotel management systems

Company: HAS Engineering

Size of company: Micro

#### **Background**

The company was founded in 2014. They provide complete solutions (design and implementation) for automation systems and visualization of all kinds of industrial processes and production machines, automation, and visualization of heating, cooling and ventilation systems, home automation. They also develop web and desktop-based software for a variety of purposes and we often integrate our as well as other manufacturers' hardware in it. Part of their services is to implement the systems for automation of industrial processes and production machines and the systems for heating, cooling, and ventilation in the industry for liquid and hard fuels, wood and plastic processing industry, food production and packaging industry, etc.

#### **Case Study**

Budget: 48,700 EUR

The tourism sector was one of the most impacted sectors during the pandemic. Even though the accommodation capacities were reopening, there is uncertainty and a low level of trust due to the possible health dangers. The accommodation capacities still fight to reach a normal level of activity.

Because of these problems, HAS Engineering focused its effort on the creation of a management tool for hotels.

MyHOTEL's software component enables management and supervision of the parameters of all hotel rooms/apartments from the reception desk, single room management via a smart device for a user, activation and deactivation of cards and smartphones for access control, chronological event reports for each of the hotel rooms (entry/exit for the user, hygienist, administrator, pressed SOS key, open window, door, etc.), integration of additional systems using the open protocol (fire alarm panels, panic alarm panels, etc.).

With MyHOTEL, the employees of the hotel will work more accurately and more quickly. The comfort and safety of customers will increase. Additionally, the hotels will save time, energy, and money.

With the implementation of the tool, the hotels minimize the human contact between the guests and the personnel and are increasing the commodity of the costumers. Due to the atomization of the energy-related systems, it is expected that the hotels will reach 5% savings with the implementation of the tool only. Additionally, with the elimination of the unwanted energy consumption (for example, the heating system will automatically go to setback temperature when guests are not present in the room), additional 30% savings can be reached.

### 3.2. Energy efficiency equipment in the industry sector: Inspection and reconstruction of compressed air systems

#### **Background**

The United Nations Industrial Development Organization (UNIDO) is executing project “Catalyzing market transformation for industrial energy efficiency and accelerate investments in best available practices and technologies in the Former Yugoslav Republic of North Macedonia”, with the Regional Environmental Center (REC) as a local implementing agency. The Project aims to reduce greenhouse gas emissions of the industry in the Republic of North Macedonia by accelerating the transformation of the local market for industrial energy efficiency (IEE) by addressing many of the existing barriers, in particular through strengthening policy, regulatory and institutional frameworks for IEE and supporting increased diffusion of and investment in best available industrial energy efficiency practices and technologies.

As part of the project, training of experts was organized, to raise the capacity in the country for inspection of compressed air systems. All participants needed to create a project that was implemented, to pass the exam. The project created its methodology for the examination of the industrial facilities with a contribution by international experts (for example, that participated in the creation of ISO compressed air standards).

#### **Case Study**

Up until now, and during the crisis, four factories are participating in the assessment of their compressed air systems, and two audits were conducted. All suggested measures were implemented and in both cases the measures improved the work of the compressed air systems, which resulted in financial savings of over 100,000 EUR per project. The measures involved easy to implement measures

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

with extremely low payback period: removal of air leakages, more efficient utilization of the equipment (work plan with a schedule for the units), automatic control, etc.

The case studies showed that during the crisis, when the demand is lower than usual, significant financial and energy saving can be achieved with measures that do not need significant implementation time and the payback period is under 1 year, especially in the compressed air system.

The industry participants were Cementarnica Usje, Knauf Macedonia, and DS Smith.

The potential for savings is demonstrated in Table 3, where the suggested measures are shown, together with the potential savings and investment.

Table 3. Results from the Compressed air system assessment at Cementarnica Usje (Source: "Compressed Air System Assessment Cementarnica Usje", UNIDO, REC)

<i>Measure</i>	<i>Investment</i>	<i>Potential savings</i>
<i>M.1-2 Change controller</i>	2x1,500 EUR	2x18,228 kWh/year 2x1,203 EUR/year
<i>M.3 Evaluation of dust collectors (reduction of air flow)</i>	35,000 EUR	51,579 EUR
<i>M.4 Pressure profile improvement on 2 compressors (introduction of VSD control in the future)</i>		1,284 EUR/year and 19,448 kWh/year 1,669 EUR/year and 25,282 kWh/year
<i>M.5 Installing of independent air compressor for Vemos</i>	12,000 EUR	Improved performance, cost reduction
<i>M.6 Interconnection between both compressed air systems</i>	20,000 EUR	Better stability of the system
<i>M.7 Installing blowers for cleaning off purposes</i>	2,500 EUR	Reduction of inappropriate use of compressed air

### 3.3. Replacement of conventional vehicle fleet with electric vehicles

Company: City Food Group DOOEL

Size of company: Small

#### **Background**

City Food Group DOOEL is a brand that started operating in 1987 in Kavadarci and is recognized as one of the first private brands in Kavadarci. They have a chain of several catering and food services across the country and are working with delivery services as well.

#### **Case study**

Budget: 71,200 EUR

In general terms, in the food industry, the cost of fuel for the delivery service is significant, in comparison with other energy needs. Due to the COVID-19 crisis, demand for food delivery services increased, especially during the quarantine period in which the restaurants were able only to deliver food.

The company City Food Group, to be more competitive, and to reduce its energy demand, replaced their delivery vehicles with small electric cars before the pandemic. With the increased food delivery demand, the investment had a significant influence on the energy consumption in the company, a cost that was one of the most influential in the cost-share. That showed good management sense from the company, as well as an example in their field of work.

Through this action, the company replaced its conventional vehicle fleet with an electric one. They bought 7 electric cars and 6 electric scooters. The cost of one customized vehicle was 8,500 EUR. The customization included bigger electricity storage and space according to their needs.

The results showed that the cost compared to the previous vehicles reduced by 91%. Additionally, this action positively influenced local pollution, which is important due to Skopje being one of the most polluted cities in the world.

### 3.4. Energy efficiency in energy generation – Development of Organic Rankine Cycle unit

Company: MACEF

Size of company: Micro

#### **Background**

MACEF is a multi-disciplinary NGO consultancy, providing intellectual, technical, and project management support services in the energy and environmental fields nationally and worldwide.

MACEF holds a stake in the design of the energy policy and energy sector and energy resources development planning process, in the promotion of scientific achievements on efficient use of resources and develops strategies and implements action plans for EE in the local self-government unit and wider.

The Center unites the engineers, investors, ecologists, and economists in joint action towards the executive policy decision-makers at the Governmental level to increase the level of EE and help mitigate climate changes. This process enables solid cooperation basis, experience exchange with kindred foreign organizations as well as better accessibility to consulting organization recruiting energy consulting services experts for international or regional projects.

#### **Case study**

Budget: 350,700 EUR

Due to low demand during the COVID-19 crisis, one of the best ways for professional and technological entities to continue their growth was to focus on research and development (R&D). With that strategy in mind, the team of MACEF focused their effort on the development of a new and innovative prototype of a small-scale ORC (Organic Rankine Cycle) energy unit, together with the Mechanical Faculty Skopje and Interbaco DOO Skopje.

The project was intended to develop an innovative Macedonian prototype ORC power plant, which is not produced in the region (even worldwide). The ORC technology is the conversion of low-temperature heat (waste energy from industrial plants or engines) into electric energy – which classifies it as Green technology.

The concept unit was assembled and tested with input electrical boilers with a combined installed capacity of 300 kW, which is the maximum capacity of the input in the unit. The efficiency of the unit

is around 10%, which means that 10% of the waste energy will be converted into a useful source of electricity.

The research showed that the unit will have acceptable cost, will help the companies recover part of the waste heat energy and transform it into useful electricity. Even though the efficiency of the process is not increased, and the energy demand is not lowered, it will result in significant financial benefits for the company with the “free” recovered waste energy from the system.

## 4. Best practices in the area of renewable energy relevant to MSMEs response to the Covid-19 crisis and post-crisis recovery in North Macedonia

### 4.1. Innovative filter unit with installation of wind turbine and photovoltaics

Company: Detal Veld DOO

Size of company: Small

#### **Background**

The company DETAL-WELD DOO was established in August 2007 with headquarters and production facilities in Kavadarci. Its main activity is machinery and equipment maintenance for industrial units of large production capacity, including maintenance with overhauling, manufacturing of spare parts, assembly of equipment, preparation of technical documentation, and so on.

#### **Case study**

Budget: 137,700 EUR

One of the main costs that influence the stability of the companies in the energy cost, which is dominant, especially in the industry. Renewables are a great solution for lowering the costs in times of economic crisis.

Given the strategy to lower their costs, and due to a shift towards research, this company invested in research and development of a filter unit for lowering the PM particles in the air, that uses renewables to satisfy its energy demand.

The urban energy independent aero plant filter unit is conceived to be able to be supplied through an energy pillar on which a windmill and an appropriate number of photovoltaic panels are mounted, and through the cartridge filter plant, the particulate matter (PM) particles are removed from the air. The installation of meters at the inlet and outlet of the filter regulates the time when it works and purifies the air when it is polluted, and in the other period, it will store the generated energy.

This is an innovative air filter that uses renewables to help the industry meet the environmental standards and, in the process, to gain additional benefits. The unit itself can satisfy its energy needs by renewables, but, the more important effect will be that when the unit energy demand is lower, the

system generates energy for the industrial process as well. This combined use of renewables is increasing the value of the product and help the companies reduce their costs and efficiency.

#### 4.2. Transformation towards 100% “green” company

Company: Propoint

Size of company: Medium

##### **Background**

Propoint is a company established in 1996. It has over 60 employees and 5,200 m<sup>2</sup> working space. The company’s main economic activity is printing, and it is one of the most established Macedonian companies in its field of work. Also, they aim to become the first 100% “green” company in North Macedonia.

##### **Case Study**

Budget: 322,600 EUR

Propoint is a company that constantly tries to improve its production facilities with ecological technology. For example, they use very sophisticated machines and environmentally friendly printing inks which try to reduce pollution. In parallel to the improvements in the technological process, the company is trying to satisfy its energy need by renewable energy produced onsite. Their building of 5,200 m<sup>2</sup> and the significant roof space allowed them to install a photovoltaic system with the intention to cover their energy demand.

Their aim to become the first 100% “green” company is motivated from two aspects: to lower their costs and become more competitive and to establish a socially responsible practice and present best practice in the country. It is an example of the combination of financial and environmental measures that can help the Macedonian companies to increase their efficiency in the production process. In a time of crisis, their energy cost is marginal, and the consequences of the pandemic are small, due to this measure implemented in 2019.

The installed photovoltaic capacity on their site was 425 kW. The system for one year produces 500 MWh of electricity which covers most of the needs of the company. Apart from the produced energy and financial gains, the system reduced the CO<sub>2</sub> emissions of the company by 470 t CO<sub>2</sub>.

The next step of the company towards its goal is replacing their vehicle fleet with electric cars for distribution of their products.

### 4.3. Development of solar dryers for vegetables and fruits

Company: Eco Solar

Size of company: Small

#### **Background**

Eco Solar is a company established in 1995 in Shtip. The main activities of the company are the production of solar dryers for agriculture, air solar collectors (for obtaining hot air), installation of solar hot water systems, and installation of photovoltaics.

#### **Case Study**

Budget: 62,200 EUR

Due to the crisis, the company focused its effort on the development of a solar dryer with a bigger capacity than it was available before 2020 in its product portfolio.

The company "Eco Solar" on a project financed by the Fund for Innovation and Technological Development designed a solar dryer for agriculture, which with the help of solar energy dries fruits, vegetables, teas, herbs, mushrooms, etc.

The principle of operation of the solar dryer is that the hot air is lighter than the cold rises in the upper zone of the drying chamber. Moving upwards, the warm air meets the product and dries it, and takes away a certain amount of its moisture. An electric heater is installed in the chamber for the drying process to continue when there is no solar radiation. The air circulation inside the dryer is forced by two axial fans. The warm air contains a large amount of moisture and leaves the dryer through the exhaust fan.

The main characteristics of the solar dryer are its volume of 1.92 m<sup>3</sup>, its capacity to prepare 100kg/day (the company has the intention to design a product with a drying capacity of 500kg/day), the total installed capacity of the photovoltaics of 4.1 kW and total installed capacity of the electric heater of 3.3kW.

The solar dryer is made in such a way that maximum absorption of solar radiation is available throughout the day. This is made possible so that every part of the oven (east side of the dryer, western side of the dryer, the main copper absorber, and door) is the absorber. Each of these parts is

colored with a selective color that has 85% absorption and 15% of solar radiation emissions. Throughout the oven is covered with polycarbonate prevents direct contact of the product to dry.

## 5. Practical measures, opportunities, and guidelines for MSMEs delivering energy-efficient products and providing renewable energy equipment on access to financing, markets, and advanced technologies in North Macedonia

Several practical measures for MSMEs delivering energy-efficient products and providing renewable energy equipment on access to financing, markets, and advanced technologies in North Macedonia were considered to define clear guidelines for MSMEs in time of crisis. The practical measures showed that MSMEs can even grow in the new working environment and the challenges that they are facing due to the pandemic can be overcome.

### 5.1. Practical measures for MSMEs delivering energy efficient products and services in getting access to markets, financing, and advanced technologies

#### **Fund for Innovation and Technology Development**

The mission of the Fund for Innovations and Technology Development is encouragement and support to MSMEs for achieving accelerated technological development, based on knowledge transfer, research on development and innovations that contribute to new employments and economic growth and development, while improving the business environment for increasing the competitive capabilities of the companies. Its main focus is co-funding MSMEs, registered in the Republic of North Macedonia, to encourage innovation activity, implementation of innovative solutions and innovative processes, the introduction of innovation and technology transfer in companies, as well as support for companies with high growth potential, funding newly founded MSMEs and achievement of a long-term positive contribution to the development of the national economy, improving competitiveness through technological and operational improvements and providing new employment.

The fund had three calls for applications in 2020, from which one was directly aimed at support of the technology development to overcome the consequences of Covid-19. This call had a budget of 2,901 million EUR. A total number of 146 projects were approved for financing and the total budget of the approved projects, including the applicant share in the budget was 4,728 million EUR. From the approved projects in this Call for applications, around 8% of the project were related to EE products, measures, and RE equipment. The share of these types of projects is smaller than expected and the

EE products and RE equipment should be more in focus in the future, due to their significant impact on the problems derived from the Covid-19 crisis.

### **Financing Sustainable Energy Sources Projects credit line from the Development Bank of North Macedonia**

The main objective of the Development Bank is to promote export, through providing credits and other forms of support: providing support for the development of small and medium enterprises, by providing investment credits, as well as providing insurance of claims based on performed export against short term commercial risk. This credit line serves as an investment support mechanism for increasing the interest of MSMEs to invest in energy efficiency and renewable energy projects. At the same time, it serves to support local commercial banks in providing knowledge and expertise to facilitate such projects and reducing the risk for developing new products for commercial entities interested in investing in the sector.

#### **Objectives of Credit Line:**

- use of renewable energy sources (sun, wind, water, biogas, etc.)
- efficient energy use
- environmental care
- improvement of energy climate in the Republic of North Macedonia

#### **Loans shall be used for projects for:**

- energy efficiency
- renewable energy sources

Loans for sustainable energy sources shall be approved under the following conditions:

#### *Financing Energy Efficiency Projects*

Amount of project: up to EUR 500,000 per project

Repayment period: up to 8 years, with up to 1 year grace period.

The interest rate for the final borrower: fixed, up to 6% p.a.

Participant bank can collect fees from the final borrower for the credit approval in the amount of 1% p.a. from the credit amount.

At least half of the gains from the project should result from the measurable energy efficiency.

Energy savings technology should be backed up by evidence in the loan application.

#### *Financing Renewable Sources Projects*

Project amount: up to EUR 3,000,000 per project

Repayment period: up to 12 years, with up to 2-year grace period.

The interest rate for the final borrower: fixed, up to 6% p.a.

Participant bank can collect fees from the final borrower for the credit approval in the amount of 1% p.a. from the credit amount.

*Target Group:*

- small (mini) hydropower plants (with a capacity less than 10MW)
- electricity and heat generation from biomass
- projects for heating based on surplus industrial heat or renewable energy sources
- solar and wind energy projects

### **Introduction of Building Information Modeling (BIM) in North Macedonia through trainings**

The goal of the TRAINEE Project is to train personnel and to transfer information on the significance of the BIM technology. The project is coordinated by the Economic Chamber of North Macedonia. The main target group for the training for the implementation of the BIM is architects, engineers, and technicians, as well as construction companies, public institutions, investors, producers of building materials, and tradespersons. To raise the capacities in the construction sector to introduce energy efficiency when constructing energy efficient buildings, four BIM training programs have been prepared for 50 participants concerning all phases of construction, utilization, and maintenance of the buildings. The anticipated benefits from the application of BIM are:

- Economic (10% savings in construction time and 20-40% lower construction and maintenance costs, improved sector competitiveness);
- Environmental (less waste, optimal energy use, resource efficiency, circular economy, and access to analysis of the entire life cycle of the construction);
- Social (higher and more secure standard of living, improved public sector services, clean and safe jobs in the construction sector).

## 5.2. [Practical measures for MSMEs providing renewable energy equipment in getting access to markets, financing, and advanced technologies](#)

### **Introduction of a digital platform for technical support of solar systems**

The company Agro Solar LTD is introducing a digital tool and platform that is making the company's services more accessible to customers. Through this platform, customers can receive 24/7 technical

support, as well as offers and service advice. The innovative way of dealing with issues with the solar systems that the company is selling through this project is increasing online communication and is reducing the need for direct visits in cases where the service provider does not have to be physically present, which is important for the safety of the customers, as well as employees in the time of COVID-19 crisis. Also, increasing the online visibility of the company as a result of increased demand, which in turn is mitigating the consequences from the pandemic.

### **Continuation of Investment Activities in EE and RE during the Covid-19 crisis**

In several cases, the Covid-19 crisis did not prevent the companies that have already started investment activities from implementing them. On the contrary, investments in RE, infrastructure, energy efficiency projects, environmental protection are implemented as planned. In that direction, through an investment of over 53 thousand EUR, PE "Markets" - Bitola implements several investment activities:

- Invested in a photovoltaic power plant to produce electricity for its own needs just before the start of the pandemic (2019) with a total investment of 18,000 EUR and installed capacity of 20 kW
- Installed LED lighting in the City Market (2020)
- Implemented a new system of central heating on pellets in the administrative building (2020)
- The renovation of the facade is in progress, for which the company received a permit from the Office for Protection of Cultural Heritage of RS Macedonia.

### 5.3. [Opportunities for repurposing of MSMEs in the aftermath of the Covid-19 crisis](#)

#### **Public-Private Partnership (PPP) and Energy Service Company (ESCO) for LED public lighting**

PPP and ESCO models are possibilities for changing the way companies work, as well as a possible market for services that are defined with the Law on Energy Efficiency. Increasing utilization of PPP agreements can create benefits for the companies, the Government, and for the general public. In a situation when several companies have problems with lowered demand, this will incentivize increased trade activity.

The project "Creating conditions for the implementation of ESCO projects" is funded by the Regional Energy Efficiency Program (REEP) by the European Union (EU), led by EBRD in cooperation with the Secretariat of the Energy Community and aims to support energy efficiency projects for street lighting in municipalities and small distribution heating systems. They are implemented and financed by

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

private energy companies (ESCOs) in a PPP like manner, i.e. companies that will provide services in the energy sector, which are defined by the new Law on Energy Efficiency.

Twenty municipalities in Macedonia have expressed interest in energy efficiency projects for public street lighting, but the implementation of the project will initially include five pilot projects in the following municipalities: Valandovo, Makedonska Kamenica, Radovich, Vasilevo, and Cheshinovo - Obleshevo.

Up to now, two tendering procedures have been closed and implementation started. Tables 4 and 5 present the main technical details of the measure.

Table 4. Measure: Replacement of old streetlights with LED in Makedonska Kamenica (Source: Meeting with the "Creating conditions for the implementation of ESCO projects" team members)

<b>Name of the municipality - street lighting project:</b>	<b>Makedonska Kamenica</b>
<b>ESCO</b>	Makedonski Telekom
<b>Total number of light points to be replaced by LED:</b>	944
<b>Technology replaced by LED:</b>	sodium/mercury/CFL/metal halogen

Table 5. Measure: Replacement of old streetlights with LED in Radovich (Source: Meeting with the "Creating conditions for the implementation of ESCO projects" team members)

<b>Name of the municipality - street lighting project:</b>	<b>Radovich</b>
<b>ESCO</b>	Interenergo dooel
<b>Total number of light points to be replaced by LED:</b>	3,297
<b>Technology replaced by LED:</b>	sodium/mercury/CFL/metal halogen

### Repurposing towards R&D

The company CSP Tek DOO decided to repurpose its activities towards R&D. They created a new start-up dedicated to delivering next generation concentrated solar power tower (CSP). In order to successfully implement the project, the company even created several additional jobs, a success that should be highlighted, especially during a crisis. It is a clear direction for MSMEs towards providing RE equipment during COVID-19 – it shows that the company can repurpose its activities (towards R&D) and grow. The solution is still at an initial phase of development. In a condition of lowered demand for services due to the pandemic, R&D is an option for MSMEs to grow safely, with great conditions for work from home.

#### 5.4. Guidelines to MSMEs delivering energy-efficient products and providing renewable energy equipment on access to financing, markets, and advanced technologies in North Macedonia

Energy efficiency and renewable energy can play a vital role in post-Covid-19 economic recovery. Implementing EE measures and RE can improve drastically the economic competitiveness of the companies and reduce their operating costs (energy cost are around 3-10% in production, greater in total, including heating and other energy needs), and it has a cumulative effect that brings higher returns the longer they are implemented and maintained. The best practices presented in this study prove that energy efficient products and renewables are viable options as an action against the economic crisis derived from the pandemic. Based on the conclusions from the analysis and the best practices in this study, a set of guidelines was created, to help the MSMEs in getting access to markets, financing, and advanced technologies.

- Increase the use of innovation funds and programmes. The Government has developed the Fund for innovation and technological development with a focus on MSMEs. The Fund supports energy efficiency and renewable energy projects, and it is a good opportunity for the companies to gain access to financing and improve their services. It also had a call focusing on Covid-19 recovery of the MSMEs as one of the government measures to help the companies in the crisis.
- Increase the use of preferential loans for EE and RES. The Development Bank of North Macedonia offers preferential loans with aim of the utilization of RE and EE products. In the situation that was created because of the crisis, these preferential loans are important for the MSMEs to gain financing towards the implementation of the measures to reduce the effects of the pandemic, like repurposing of the activities or research and development of innovative EE products and RE equipment.
- Creating partnerships for easier access to supplies, resources, and markets. Creating partnerships can offer to widen the market possibilities and the ability to access finances for the MSMEs in the sectors of EE and RE, due to the combination of capacities and access to shared technology from the various partners. Because of the small size of the MSMEs, building partnership is essential for increasing the competitiveness of the companies and battling the effects of the pandemic. PPPs are one of the ways for the government to boost the economy, build partnerships with the MSMEs and gain benefits in the process of supporting the market (increased utilization of energy efficient products, for example in the public lightning sector).

- Increasing online visibility (introducing digital stores, online technical support, social media presence). The increased online presence can reduce the effect of the lowered number of customers due to restriction of movement, curfew hours, and other general health measures due to the pandemic. As the practical measures show, this applies to MSMEs delivering EE products and RE equipment, especially in the area of technical support.
- Organization of training for employees and/or for students and professionals. Several MSMEs faced a stop in production and maintained only the most important activities, due to the shift of operation because of the reduced space/distancing measures and other health concerns. Because of that, the companies can introduce capacity building of their employees through training, as shown in the practical measure for the implementation of BIM, or can offer training to students and other professionals to build their knowledge and experience at a time of reduced activities because of the Covid-19 crisis.
- Repurposing of MSMEs towards highly demanded services in the new working environment because of the Covid-19 crisis. The practical examples showed that repurposing of MSMEs towards EE products and RE equipment projects can be an important measure to mitigate the influence that the pandemic had on the day-to-day operations of MSMEs. New services can be created to respond to the new highly demanded products.
- Continuation of the investment plan in EE and RE.

## Conclusions

The MSME sector accounts for more than 99% of the economy in North Macedonia. At the same time, it is one of the most vulnerable sectors that was most seriously affected by the COVID-19 crisis in the country. An analysis of MSMEs' ability to sustain themselves in a pandemic situation has shown that the majority (about 60%) can only last 1-3 months before having to stop their operations.

Due to that, the government is trying to help MSMEs through concrete policies and measures. Many of the measures concern companies' finances and liquidity, for example, by offering no-interest loans and tax reductions. These measures aim to prevent companies from collapsing, but on the other hand, there is a lack of measures that will help companies that stopped their operations to overcome the crisis and to resume working soon after the pandemic.

On the other hand, in addition to the assistance offered by the government, companies have taken measures to deal with the crisis. Some companies have successfully transferred their operations from the regular workspace to remote locations (such as employees' residences). Other companies have focused their business only on the most important projects that would allow them to survive. Some MSMEs restructured their activities in response to the new needs of the market, for example, production of medical equipment or R&D of EE products and RE equipment.

Through an extensive survey and research of available best practices of MSMEs in delivering EE products and providing renewable energy equipment, it was concluded that companies need to increase the utilization of various funds, programmes and preferential loans, extend their partnership and networking in order to overcome the issues of supply and product placement, reorganize their schedule and capabilities (through trainings), increase their outreach towards customers in a safe manner, e. g. through digital stores, online support, social media presence, and if possible, try to repurpose their activities towards the new highly demanded products on the market due to the changes in the working environment.

On the other hand, based on the analysis of the new working environment and the issues that the MSMEs are facing, and of the governmental policies, there are ways that the government can influence and mitigate the impact of the crisis on MSMEs. Some of the recommendations towards policies and measures that the government could implement include increased utilization of PPP, tax reduction for EE and RES technologies, introduction of "green" procurement, developing of EE and RE fund, giving focus to EE products and RE in available programmes for MSMEs.

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

---

Even though there is a significant negative impact on the economy, and in particular on the MSMEs, with a strategic approach from the government and the companies, this impact can be mitigated, and even positive results and growth can be seen in particular case studies.

## Recommendations to the Government of North Macedonia in creating an enabling environment through appropriate policies and legislation for MSMEs to encourage delivery of energy efficient products and services and provision of renewable energy equipment

The objective of the recommendations based on the analysis in the report is that the Government can introduce appropriate policies and legislation for MSMEs to encourage delivery of energy efficient products and services and provision and use of renewable energy equipment.

### Recommendations to the Government for developing policy guidelines and establishing financial incentives schemes.

- Increase the utilization of Public-Private Partnership (PPP) agreements. This method can be of benefit for both the companies and the Government and, ultimately, for the general public. In a situation when many companies have problems with lowered demand, this will incentivize increased trade activity. In the past, PPP was widely used in the public lighting sector and has several other possibilities in the area of energy efficient products and renewable energy.
- Increase the support of new businesses. In North Macedonia, the government established several instruments to support the new and innovative business. The Fund for Innovation and Technological Development and the Agency for Promotion of Entrepreneurship of the Republic of North Macedonia were created. Both are focused on advanced technology and had financed products for EE and RE. This small-scale practice needs to be significantly increased, due to the focus on post-Covid-19 economic recovery and its significance to the MSMEs.
- Introduction of tax reduction of energy efficient and renewable energy products. Reducing the tax for EE and RE products will increase the demand and utilization. It helps set up favourable market conditions for these products, and also helps companies increase their competitiveness and reduce their energy costs.
- Introduce “green” procurement. The Government is one of the biggest consumers. By choosing EE and RE products and advanced technologies, it makes an important contribution towards sustainable consumption and production. Due to that, public procurement should give an advantage to EE and RE products in the tendering procedures.
- Dedicated communication protocols between the Government and companies (through business associations and chambers of commerce)

- Introducing EE and RE measures for MSMEs in national strategies and action plans that cover the sector of sustainable energy. When doing the short-term planning and long-term vision for the growth of the EE/RE sectors/industry, the Government should also envision how MSMEs would benefit from EE/RE measures and should incorporate them in the strategic vision. The drivers of the EE/RE market are always the companies that are first in acceptance of new technologies and they carry the “first investment” burden and prices before introducing such measures to the general public.
- Establishing EE and RE fund. Having a separate Fund that would help reduce the risk of investments in EE and RE, while promoting the strategic vision of the country going toward sustainable energy should be a priority of the Government. Such Fund would also help reduce some of the operating costs of public institutions and give a boost to the EE/RE with increased interest for their products and services. The Government should be more proactive and assist in establishing the Fund in the near future, so it would be an additional tool at the disposal of MSMEs in the post-Covid-19 recovery period.
- Increased transparency of the process for application of subsidies. As the survey demonstrates, a significant number of the MSMEs do not know how to apply for no-interest / low-interest loans. Facilitating this process will enable bigger utilization and wider spread of the available measures.
- Giving focus on EE products and RE in available programmes for MSMEs. Due to the positive influence on post-Covid-19 recovery and strengthening the competitiveness of the MSMEs through EE and RE, more focus on these projects needs to be added to the available programmes for MSMEs.
- The Government should create clear guidance on available measures and solutions that the companies can implement to endure the crisis and the short-term and long-term impact of the pandemic. This guidance should not be aimed only on governmental measures, but other support instruments, such as international donor organizations, private initiatives, internal measures by companies, etc.
- There should be adaptation measures, as well as mitigation measures available. For example, the Government could support the laid-off workers and create a conducive environment for start-ups that will focus on the opportunities derived from the changes in the work environment (online businesses, medical research, etc.)

## References

1. BusinessEurope. (2020). *BusinessEurope proposals for a European economic recovery plan*.
2. CEFE and UGD. (2020). *Rapid Appraisal of Corona Impact (RACI)*.
3. UNECE. (2020). *Guidelines and Best Practices for Micro-, Small and Medium Enterprises in Delivering Energy-Efficient Products and in Providing Renewable Energy Equipment*. Available at: <https://unece.org/sustainable-energy/publications/guidelines-and-best-practices-micro-small-and-medium-enterprises>
4. Epicentar and USAID. (2020). *Влијание на ковид-19 врз градежната индустрија*.
5. FinanceThink, USAID and UNICEF. (2020). *The Social and Economic Effects of COVID-19 on Children in North Macedonia Rapid Analysis and Policy Proposals*
6. Fund for Innovation and Technology Development. (2020). *Public call for financing projects for reduction of air pollution in urban areas in the Republic of Northern Macedonia " O2 Challenge " – Results*. Skopje. Available at: [https://fitr.mk/wp-content/uploads/2020/10/O2-TABELA\\_7.pdf](https://fitr.mk/wp-content/uploads/2020/10/O2-TABELA_7.pdf)
7. Fund for Innovation and Technology Development. (2020). *Public call for Co-financed Grants for Technological Development for Overcoming the Consequences of COVID-19 - Results*. Available at: <https://fitr.mk/wp-content/uploads/2020/09/covid-19.pdf>
8. Fund for Innovation and Technology Development. (2019). *Public call for financing project proposals through the Instrument for Support - Co-financed grants for technological development - Shortened procedure – results*. Available at: [https://fitr.mk/wp-content/uploads/2020/04/Tabela-Tehnoloski-razvoj\\_03.pdf](https://fitr.mk/wp-content/uploads/2020/04/Tabela-Tehnoloski-razvoj_03.pdf)
9. Gaia Consulting Ltd. (2014). *Energy Efficiency in Small and Medium Sized Enterprises*
10. Ecofys, Fraunhofer-ISI and Case. (2016). *Prices and costs of EU energy Final Report*
11. Ecofys, Fraunhofer-ISI and GWS. (2015). *Electricity Costs of Energy Intensive Industries - An International Comparison*.
12. Development Bank of North Macedonia - Financing Sustainable Energy Sources Projects. Available at: <http://www.mbdp.com.mk/en/lending/energy#energy-efficiency>
13. Google. (2020). *COVID-19 Community Mobility Report – North Macedonia*.
14. International Labour Organization and European Bank for Reconstruction and Development. (2020). *Rapid Assessment of the Employment Impacts and Policy Responses – North Macedonia*.
15. *Law on Business Entities*. Official gazette of R. Macedonia no. 28/04 from 30.04.2004
16. Panevski, Sashe and Dukovski, Aleksandar. (2018). *Information on transposition of Article 8 EED in R. Macedonia*. UNIDO and REC.
17. State Statistical Office. (2020) *Energy Balances, 2019 – preliminary data*. Skopje.
18. State Statistical Office. (2020). *News release – Number of active business entities, 2019*, Skopje
19. UNIDO and REC. (2020). *Compressed Air System Assessment Cementarnica Usje*. Skopje.
20. UN Women. (2020). *Влијанието на ковид-19 врз жените и мажите во Северна Македонија*.
21. World Bank Group. (2020). *Western Balkans Regular Economic Report No.18 – An Uncertain Recovery*.
22. Македонија 2025. (2020). *Влијанието на КОВИД-19 врз претпријатијата во Северна Македонија*. Скопје.

23. <https://www.mbdp.com.mk/mk/kreditiranje/energetika>

## Annex I. Questionnaire for the impact of COVID-19 on the micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

### Introduction

UNECE is one of the partners implementing **UNDA project “Global Initiative towards post-Covid-19 resurgence of the MSME sector”**. The overall goal of the project is to strengthen the capacity and resilience of micro-, small and medium enterprises (MSMEs) in developing countries and economies in transition to mitigate the economic and social impact of the global Covid-19 crisis.

As part of its task under the project, UNECE is developing **Guidelines and Best Practices in North Macedonia for MSMEs in delivering energy efficient products and in providing renewable energy equipment**. In the previous activities of the project, a study for the UNECE region has been developed, which can be seen at the following link: [Link to the study](#)

Role of MSMEs in delivering energy efficient products and in providing renewable energy equipment can become crucial in the post-Covid-19 recovery phase if they are provided with necessary incentives. This can be one of the ways to restart MSMEs or even to create new ones when job opportunities are scarce. MSMEs can benefit from clear guidelines on access to financing, access to markets, access to advanced technologies, and a favorable environment created by proper government policies and legislation. They will also benefit from concrete examples of successful implementation of measures by MSMEs, including repurposing that led to significant economic gains. In return, MSMEs can become engines for post-crisis economic recovery, creating job opportunities and leading socially responsible and environmentally friendly economic development thus helping to achieve numerous sustainable development goals.

UNECE has engaged Mr. Sashe Panevski as a consultant for this project. He is in the process of collecting and analyzing materials. One of his tasks is to **collect and analyze case studies of best practices from North Macedonia**. We are asking you to **assist Sashe Panevski in direct outreach to MSMEs or large companies that use MSMEs** in their supply and/or distribution chain, which achieved proven results in overcoming consequences of the Covid-19 crisis by implementing an updated management and/or processing approach, focusing specifically on companies that deliver energy efficient products or services and/or provide renewable energy equipment. Case studies from past crises (financial, caused by natural or manmade disasters, conflicts, etc.) that would be useful in the post-Covid recovery are also welcome. **We are kindly asking for your support in identification of such companies for further communication and exchange of their positive experience.**

Please find attached data collection template for your reference and better understanding of the potential case studies required information. In case you have such information please contact Sashe directly at [sashe.panevski@gmail.com](mailto:sashe.panevski@gmail.com) at your earliest convenience, preferably **by Thursday, 05 November 2020**.

### Questions

Q1: Size of the company

Possible answers: Micro, Small, Medium, Large

Q2: What is your primary activity?

Answer format: short text

Q3: What is the impact of COVID-19 on your day-to-day operations?

Possible answers: None, Minor, Significant, Large, Positive

Q4. Define the resilience of your company towards the impact of COVID-19?

Possible answers: Small, Medium, Large

Q5. What is your mode of operations?

Possible answers: Fully home, Fully work, Partially, Not working

Q6: Which measures did you implement to combat the COVID-19 related issues?

Answer format: Paragraph

#### Questionnaire in Macedonian

Прашалник за влијанието на  
КОВИД-19 врз микро-, малите и  
средните претпријатија во испорака  
на енергетски ефикасни производи и  
обезбедување опрема за обновлива  
енергија

УНЕЦЕ е еден од партнерите што го имплементираат проектот на УНДА „Глобална иницијатива кон опоравување на секторот МСМЕ после Ковид-19“. Општата цел на проектот е да се зајакнат капацитетите и еластичноста на микро, малите и средните претпријатија (ММСП) во земјите во развој и економиите во транзиција за да се ублажат економските и социјалните влијанија на глобалната криза Ковид-19. Како дел од својата задача во рамките на проектот, УНЕЦЕ развива насоки и најдобри практики за Северна Македонија за ММСП во испорака на енергетски ефикасни производи и обезбедување опрема за обновлива енергија. Во претходните активности на проектот, направена е иста таква студија за Европа. Улогата на ММСП во испораката на енергетски ефикасни производи и обезбедувањето опрема за обновлива енергија може да стане клучна во фазата на закрепнување по Ковид-19, доколку им се обезбедат неопходни стимулации на претпријатијата. Ова може да биде еден од начините да се рестартираат ММСП или дури и да се создадат нови, кога можностите за работа се мали. ММСП можат да имаат корист од јасни упатства за пристап до финансирање, пристап до пазари, пристап до напредни технологии и поволно опкружување создадено со соодветни владини политики и законодавство. Тие исто така ќе имаат корист од конкретни примери за успешно спроведување на мерките од страна на ММСП, вклучително и пренаменување на активност, што доведува до значителни економски придобивки. За возврат, ММСП можат да станат мотори за посткризно економско закрепнување, создавање можности за работа и водење на општествено одговорен и еколошко-економски развој, помагајќи на тој начин да се постигнат бројни цели за одржлив развој.

УНЕЦЕ го ангажираше г. Саше Паневски како консултант за овој проект. Тој е во процес на собирање и анализа на материјали. Една од неговите задачи е да собира и анализира студии на случаи за најдобри практики од Северна Македонија. Бараме да му помогнете на Саше Паневски во директна комуникација со ММСП или големи компании кои користат ММСП во нивниот синџир на снабдување и / или дистрибуција, кои постигнале докажани резултати во надминувањето на последиците од кризата Ковид-19 со спроведување на ажурирано управување и / или нов пристап кон процесите, фокусирајќи се специјално на компаниите кои испорачуваат енергетски ефикасни производи или услуги и / или обезбедуваат опрема за обновлива енергија. Студии на случај од минати кризи (финансиски, предизвикани од природни или вештачки катастрофи, конфликти, итн.), Кои би биле корисни за закрепнување по-Ковидот, исто така се добредојдени. Љубезно бараме Ваша поддршка во идентификувањето на ваквите компании за понатамошна комуникација и размена на нивното позитивно искуство.

Можете да го најдете приложениот образец за собирање податоци за ваша препорака и подобро разбирање на потребните информации за потенцијални студии на случај. Во случај да имате такви информации, контактирајте го Саше директно на [sashe.panevski@gmail.com](mailto:sashe.panevski@gmail.com) што е можно порано, по можност до четврток, 05 ноември 2020 година.

Големина на претпријатието

- Микро
- Мало
- Средно
- Големо

Која е Вашата примарна дејност?

Your answer \_\_\_\_\_

Какво е влијанието на КОВИД-19 на Вашите секојдневни операции?

- Никаков
- Мал
- Значаен
- Голем
- Позитивен

Guidelines and best practices for micro-, small and medium enterprises in North Macedonia in delivering energy-efficient products and in providing renewable energy equipment

Колкава е издржливоста на вашето претпријатие за влијанието на КОВИД-19?

- Мало
- Средно
- Големо

На кој начин ги извршувате секојдневните операции?

- Целосно од дома
- Целосно од работното место
- Делумно
- Не работиме

Кои мерки ги примените за да се справите со проблемите настанати поради КОВИД-19?

Your answer

Submit