

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

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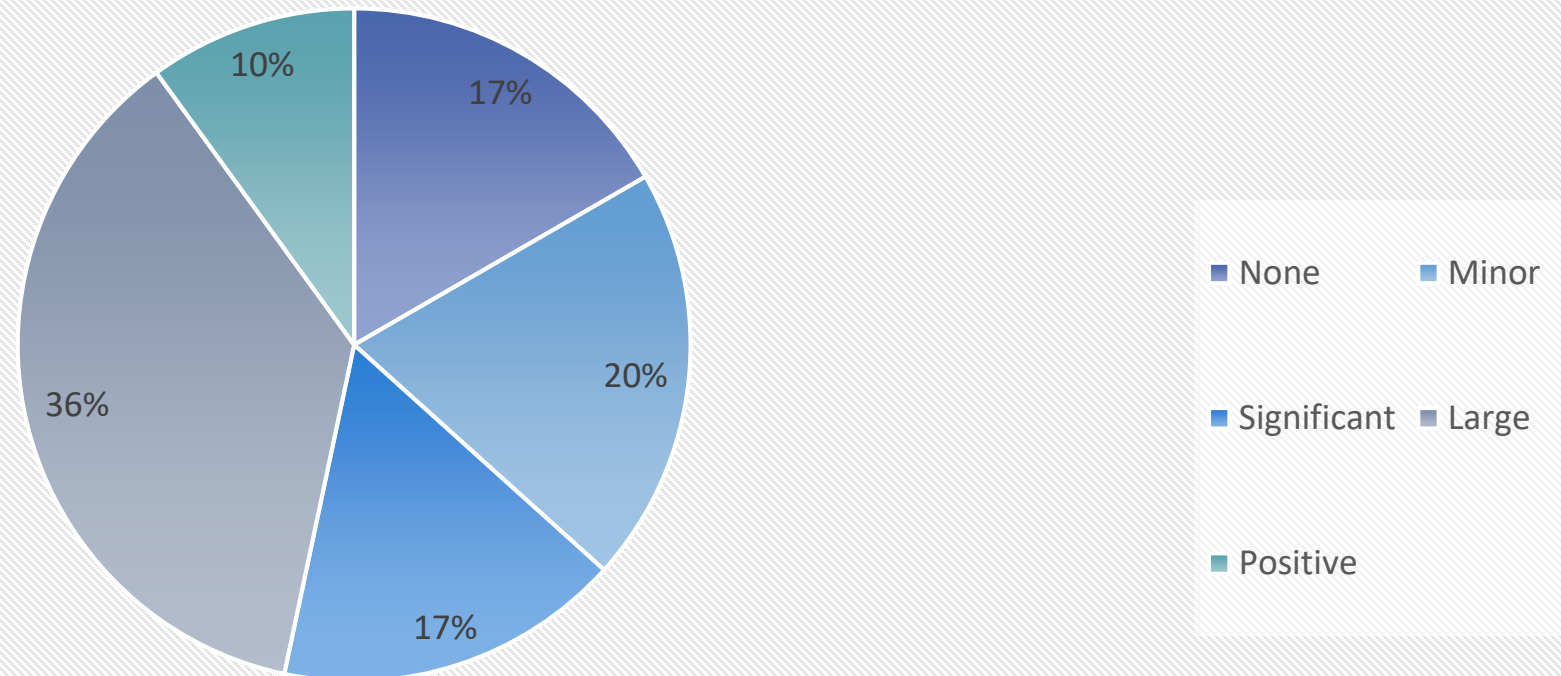
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# Analysis of the environment that MSMEs working in the area of EE and RE as a result of the Covid-19 crisis

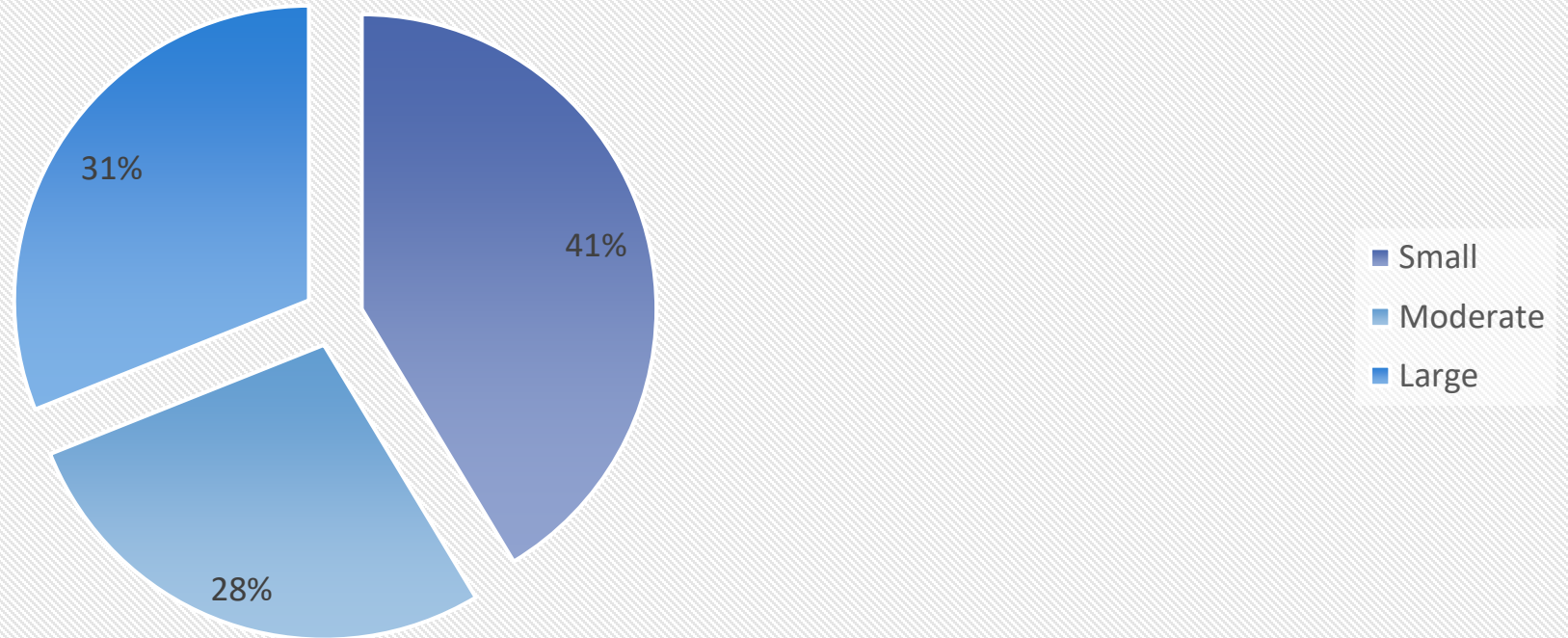
## Impact on the COVID-19 pandemic on day-to-day operations

- 73% affected
- 10% positive impact
- 17% no impact



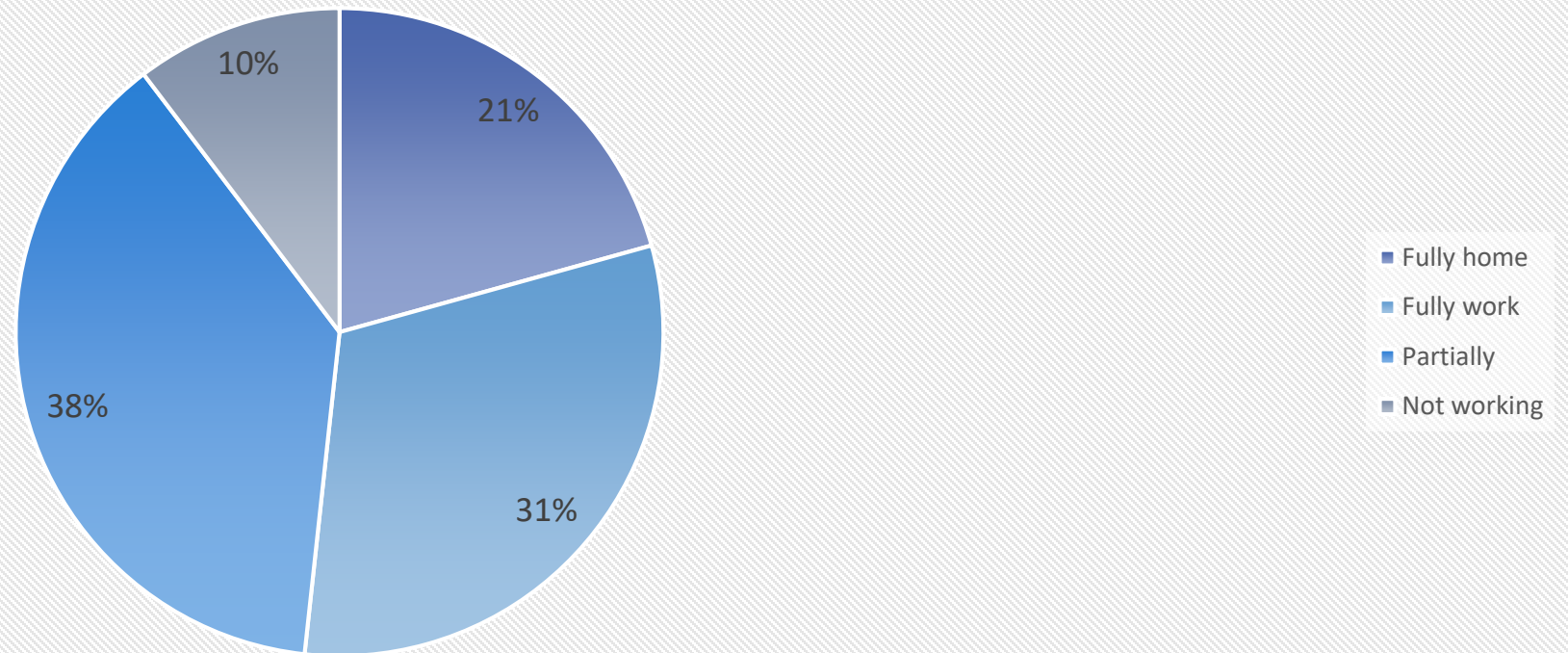
## Impact of COVID 19 on the resilience of MSMEs

- 41% - 1-3 months
- 28% - 3-9 months
- 31% - Larger



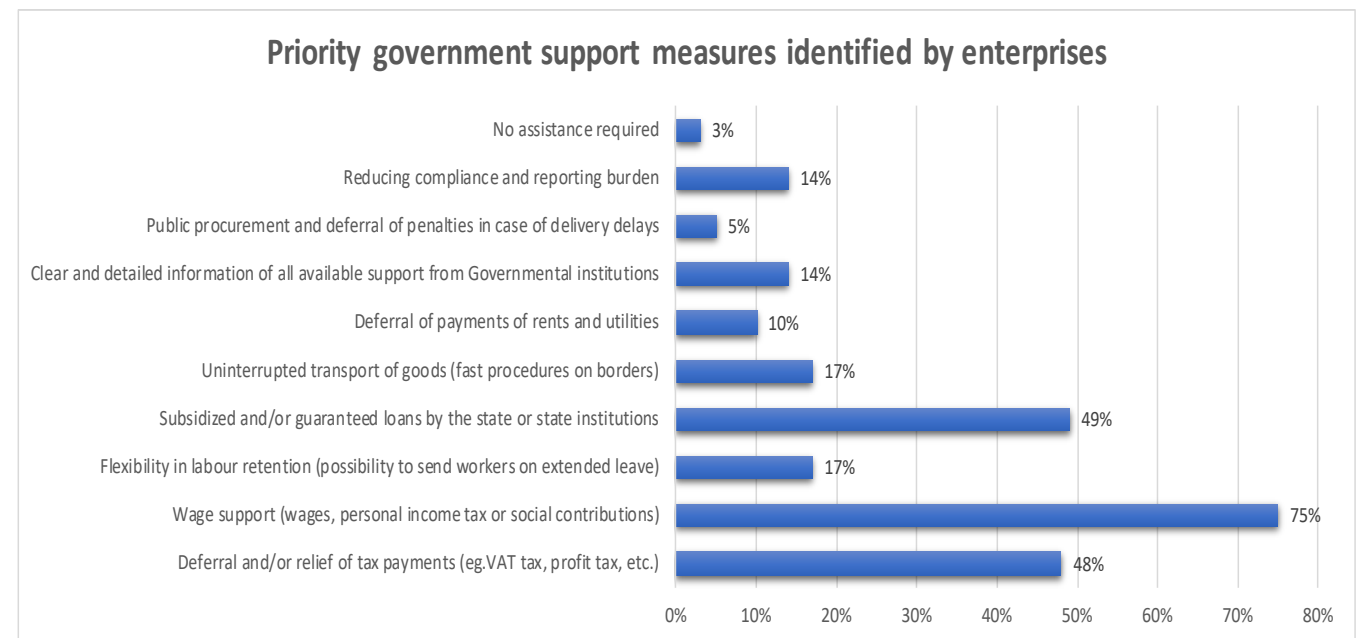
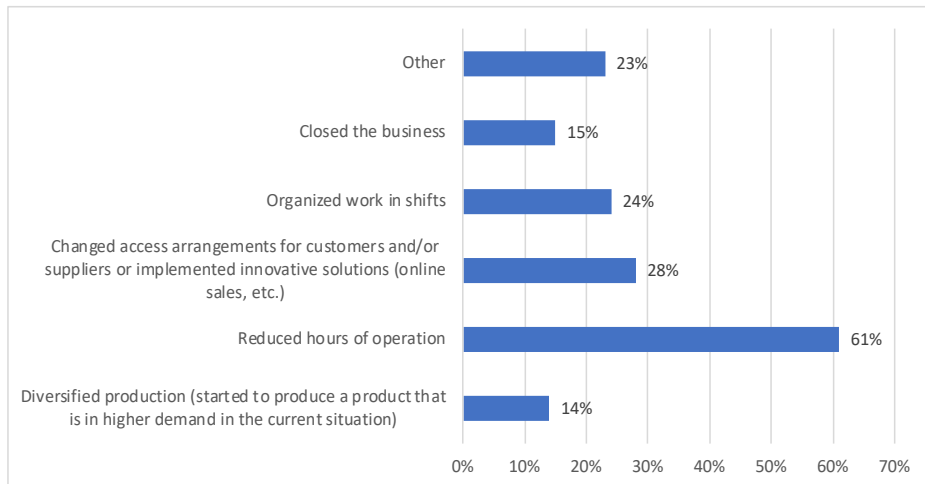
## Mode of operation for MSMEs during restrictive measures

- Dominant – partially



## Measures taken by the enterprises in response to the pandemic vs

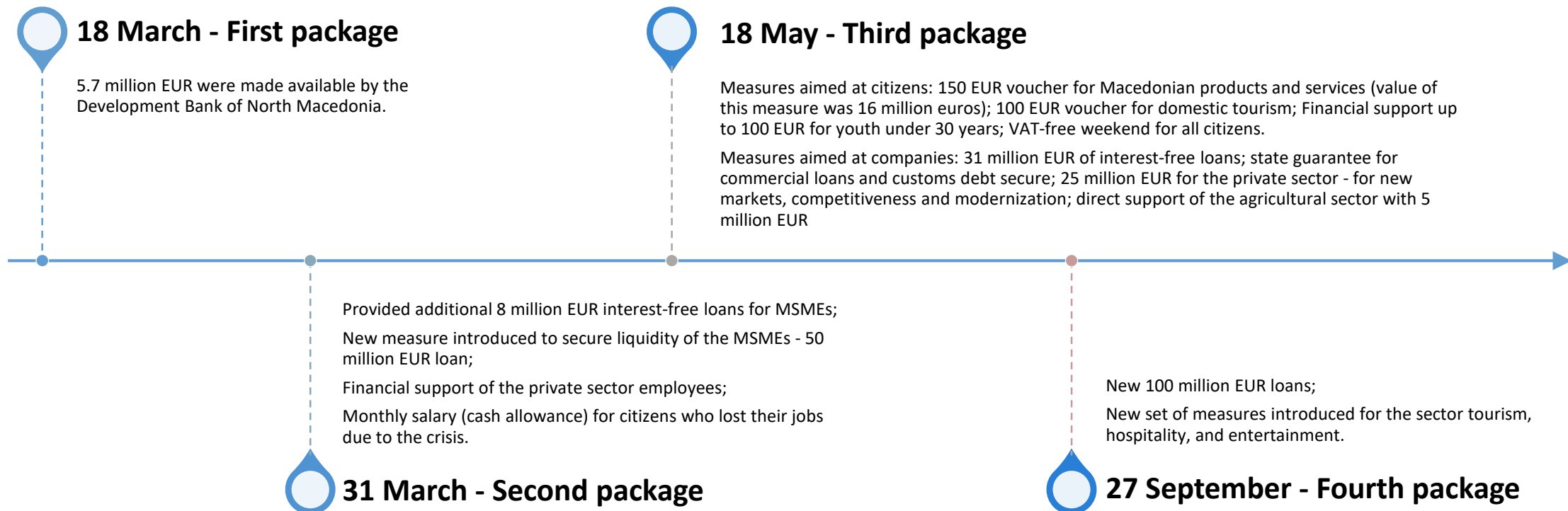
## Priority government support measures identified by enterprises



# Governmental measures



# Timeline in 2020



# Best practices in the area of EE

# Energy efficiency equipment in the buildings sector

## Hotel management system

- Company: HAS Engineering
- Product: MyHotel
- Budget: 48,700 EUR
- 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, integration of additional systems using the open protocol
- 5% savings with the implementation of the tool and additional 30% with the elimination of the unwanted energy consumption

Energy efficiency equipment in the industry sector

Project “Catalyzing market transformation for industrial energy efficiency and accelerate investments in best available practices and technologies in Republic of North Macedonia”

- UNIDO/REC
- Training of experts and preparation of Assessments for compressed air
- Participants: TITAN Usje, Comfy Angel, Alkaloid AD Skopje, Knauf and DS Smith

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

## Replacement of conventional vehicle fleet with electric vehicles

- Company: City Food Group DOOEL
- Budget: 71,200 EUR
- 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.

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

- Company: MACEF
- Budget: 350,700 EUR
- Development an innovative Macedonian prototype ORC power plant - conversion of low-temperature heat (waste energy from industrial plants or engines) into electric energy
- 10% conversion of waste energy into electricity

# Best practices in the area of RE

Innovative filter unit with  
installation of wind turbine  
and photovoltaics

- Company: Detal Veld DOO
- Budget: 137,700 EUR
- research and development of a filter unit for lowering the PM particles in the air, that uses renewables to satisfy its energy demand.



## Transformation towards 100% “green” company

- Company: Propoint
- Budget: 322,600 EUR
- Installed photovoltaic capacity of 425 kW
- 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>.

## Development of solar dryers for vegetables and fruits

- Company: Eco Solar
- Budget: 62,200 EUR
- The main characteristics of the solar dryer are its volume of 1.92 m<sup>3</sup>, its capacity to prepare 100kg/day, the total installed capacity of the photovoltaics of 4.1 kW and total installed capacity of the electric heater of 3.3kW.

# Practical measures, opportunities, and guidelines for MSMEs

Recommendation:  
Increase the use of  
innovation funds  
and programmes.

- Practical measure: **Fund for Innovation and Technology Development**
  - three calls for applications in 2020
  - one was directly aimed at support of the technology development to overcome the consequences of Covid-19
  - budget of 2.9 million EUR

Recommendation:  
Increase the use of  
preferential loans  
for EE and RES

- Practical measure: **Financing Sustainable Energy Sources Projects credit line from the Development Bank of North Macedonia**
  - providing support for the development of small and medium enterprises, by providing investment credits for EE and RE
  - Target Group: small (mini) hydropower plants (with a capacity less than 10 MW); electricity and heat generation from biomass; projects for heating based on surplus industrial heat or renewable energy sources; solar and wind energy projects.
  - Conditions (EE/RE): up to EUR 500,000/3,000,000; up to 8 years, with up to 1 year grace period/up to 12 years, with up to 2-year grace period; fixed interest rate, up to 6% p.a.

Recommendation:  
 Creating partnerships  
 for easier access to  
 supplies, resources,  
 and markets

- Practical measure: project "Creating conditions for the implementation of ESCO projects"

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

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

\*Source: Meeting with the "Creating conditions for the implementation of ESCO projects" team members

## Recommendation: Increasing online visibility

- Practical measure: **Introduction of a digital platform for technical support of solar systems**
  - 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.

Recommendation:  
Organization of  
training for  
employees and/or  
for students and  
professionals

- Practical measure: **Introduction of Building Information Modeling (BIM) in North Macedonia through trainings**
  - TRAINEE Project
  - 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).



Recommendation:  
Repurposing of  
MSMEs towards  
highly demanded  
services in the new  
working  
environment

- Practical measure: **CSP Tek DOO**
  - created a new start-up dedicated to delivering next generation concentrated solar power tower (CSP)

## Recommendation: Continuation of the investment plan in EE and RE

- Practical measure: PE "Markets"
  - 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.

Recommendations to the Government of North Macedonia in  
creating an enabling environment through appropriate policies  
and legislation for MSMEs

# Recommendations to the Government

Increase the utilization of Public-Private Partnership (PPP) agreements

Increase the support of new businesses

Introduction of tax reduction of energy efficient and renewable energy products

Introduce “green” procurement

Dedicated communication protocols between the Government and companies

Introducing EE and RE measures for MSMEs in national strategies and action plans

Establishing EE and RE fund

Increased transparency of the process for application of subsidies

Giving focus on EE products and RE in available programmes for MSMEs

clear guidance on available measures and solutions

Thank you for  
your attention

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