



Republic of North Macedonia  
**Ministry of Environment  
and Physical Planning**



# **RAPID SOCIO-ECONOMIC ASSESSMENT OF THE MACEDONIAN ENHANCED NDC TARGETS/MEASURES**

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Prepared by:



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Climate Change (enhanced NDC)



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## Vulnerable groups

**Social vulnerability In North Macedonia.** North Macedonia defines vulnerability as the presence of special characteristics, specialties and circumstances of the individual, community, system or objects that are making them susceptible to negative influences and damaging factors of a given hazard. As energy is the main sector of the eNDC, the following sections are assessing the use of energy by the vulnerable groups.

**Climate change.** The Republic of North Macedonia identifies 14 vulnerable groups. two main groups as being at high risk based on their economic and social conditions: women and vulnerable groups in the Skopje City.

## Covid-19 in Macedonia

In North Macedonia, from January 3rd to February 16<sup>th</sup>, 2021, there have been 97,456 confirmed cases of COVID-19 with 3,003 deaths. To combat the spread of the virus and reduce the health impact, governments quickly implemented, at the end of March 2020, health measures focused on containment and physical distancing.

**Socio-economic impacts of the Covid-19.** The GDP contracted in 2020 by 5.4% because of the Covid-19 pandemic. The fiscal position of the government has also deteriorated due to the snowball effect of the constraints taken by all countries. The government revenue is now expected to reduce by 11.5% (about 415 million EUR). The industry sector is the one that is the more hit by the pandemic. The recession of the economy in early 2020 has a direct impact on unemployment. Since the beginning of the pandemic, 45,543 jobs have been lost and overall, at the country level, unemployment increase by almost 43%.

**North Macedonia after the Covid-19 plan.** The country has thus adopted a series of economic and legislative measures (69 protocols) aimed at limiting the spread of the virus and preserving as many jobs as possible. Since the beginning of the crisis, the Macedonian government has deployed four packages of economic

measures. In total, the overall investment plan for the new Macedonian economy will cost about 1.02 billion euros.

## Enhanced National Determined Contributions (eNDC)

**Overview.** Five specific sectors largely contribute to the GHG emissions including (i) the energy sector (80% of emission); (ii) the metal industry; (iii) the cement production sector; (iv) the crop production sector; and (v) the waste sector.

**Sectors and contribution to enhanced NDC through pollution reduction.** North Macedonia's GHG emissions as a ratio to GDP are five times higher than the EU average and will require incremental investments if they are to be moderated by 2040. In 2025, the largest reduction should come from the "Increased use of heat pumps" while in 2030, the largest reduction of GHG will come from hydropower plants built. The PAM 2 related to the construction of Large hydropower plants contributes to the use of renewable energy source from watermills and can improve the quality of the air and the reduction of the negative effects of GHG production. The second measure that will highly contribute to the reduction of GHG production is the reduction of losses in electricity and heat networks.

**Actions to strengthen the NDC applications.** The 16 additional policies and measures enablers of mitigation actions contribute significantly to sustainable development and the SDG 7 aims to respond to the RES. In North Macedonia, several measures would enhance the achievement of the SDG 9 including (i) Building resilient infrastructure; (ii) promoting inclusive and sustainable industrialization; and (iii) fostering innovation.

## Socio-economic impact of eNDC

**Gender and the benefits of enhanced NDC.** eNDC policies and measures meet three social objectives that impact the well-being of the population and the most vulnerable.

as well as their ability to cope with them. The elderly, especially women who face the challenge of providing a proper home heating, are exposed to the negative effects of burning firewood that has a long-term impact on their health. Finally, 68% of the citizens perceive the connection and the differences between climate change and air pollution.

**Green jobs creation resulted from actions of the ENDC that contribute to the well-being of the population, especially the vulnerable groups.** The positive impact of the effort of reducing the CO<sub>2</sub> and GHG emissions is the social and suitable development due to the job creations.

By 2030, the Existing Measures (WEM), the Scenario with Additional Measures (WAM) and the Scenario with Extended Measures (e-WAM) shows an exponential increase of the green jobs' creations, with the contribution of energy efficiency. The most ambitious scenario also known as the climate champion scenario has the most potential of job creation, doubling the survival scenario in 2035

**The impact of enhanced NDC on vulnerable groups.** Vulnerable groups here include poor households, poor women headed households, elders, unskilled workforce and minorities. To present an objective qualitative and analytical manner the wide information available, the 63 proposed policies and measures (PAM) identified have been classified into 12 categories presented below. The latter are grouped per type of policy (energy incentives encompasses PAMS such as *incentives feed-in premium, incentives feed-in tariff, introduction of CO<sub>2</sub> tax and RES without incentives*) and not exclusively by sectors of applicability.

Each policy in this **"Disposal of unwelcome components and waste"** area should have beneficial effect on the general population and firms due to its contribution to cleaner environment. Overall, it is estimated that such measures would have either a positive impact on vulnerable groups (on at least 50% of them). **Regarding the Energy Incentive**, it is related to financial measures aimed at making upcoming changes in the energy mix more attractive from an economic perspective. Incentive *feed-in tariffs* and *RES* should have a beneficial impact

on health over time and thus affect positively vulnerable groups, generating savings and health benefits for them.

Overall, the **"Energy production and distribution"** measures should have a positive impact on households and firms (80% of proposed PAMs), provided job opportunities are offered (20% of PAMs). For **"Improving social effects of transition to a low carbon economy"** measures, transversal and economy-wide program can be used to smooth out the change in energy systems. In this respect, of the four PAMs in this category should all have a positive impact on vulnerable groups provided appropriate mitigation and inclusion measures are implemented.

While around 60% of PAMs proposed in the **Land and forest use** category should be neutral with respect to vulnerable groups, still some positive and negative impact are to be expected. "Greening" of procurement rules should have an obvious positive impact on all kinds of social groups and none negative impact on vulnerable groups. **The measures in "R&D and education"** should have a broad positive impact on the economy due to the induced productivity increase as well as increased energy efficiency and lowered pollution. **Developing regional integration of energy markets** with a view to lowering costs and increase generation should be neutral for vulnerable groups (100% of PAMs) and should prove beneficial for the economy in the long run.

**"Change in energy use in manufacturing and transportation"** measures have a broad range of impact for its PAMs, from negative impacts (44.4% of PAMs) to conditionally positive effects (55.6). **Economywide change in energy use** may positively affect vulnerable groups (30%) or negatively affect them (70%) if none mitigation measures are implemented. **The PAM "Reduction of emissions from agriculture and agro-industry"** will lower emissions but will all require investments (equipment, training, upgrade of facilities...) that necessitate incentives/support, otherwise they may harm poor/women farmers, older farmers and minority rural households.

Finally, developing energy efficiency of (public and private) buildings (by making new up-to-date buildings or retrofitting/renovating existing ones) and photovoltaic irrigation for agriculture will be very important for environmental purposes.

**Economic Impacts.** In the energy sector (32 measures), 50% of the measures (i.e. 16) would have a positive impact on job creation, main green jobs. In addition, 56.3% of the measure in the energy section would positively impact economic growth. Finally, the energy measure would improve the standard of living of the poor by creating more opportunities for them and by improving their health status (less pollution for instance). The agriculture measures (11) would have no impact of job creation and low impact (36% of them) on poverty reduction. Indeed, in the agriculture sector, the improvement of technology would result in a reduction of labor in the sector. However, the improvement production and intercorrelation with the EU will create an important value chain to “forward industry” that could easily absorb the free labor from agriculture. The measures in the agriculture sector will have a high impact in economic growth as 81.8% of these measures will impact it positively. The economy overall will benefit more of the eNDC agricultural measures.

**Economic Implications of the eNDC scenarios.** For the realization of the measures proposed under the WEM scenario €13.3 billion are needed, of which about 99% are investment in the energy sector. WAM scenario requires an additional 38%, while for the realization of e-WAM almost 60% more compared to WEM. The average yearly investment in WEM is approximately 4.8% of the total average annual GDP, while in the e-WAM is 7.7%. If all of the measures are implemented in parallel and the “Energy efficiency first” principle is applied, then the total investment can be reduced in the range from 7% to 19%.

**Impact of Covid-19 on the GHG.** The reduction in GHG emissions in the world is mainly caused by the reduction of land transport (teleworking) and air transport, the increase in local shopping and in online shopping. However, this

reduction has no effect on climate change since it is a one-time impact located around the sources of emissions. This positive effect could not be observed in the long term unless it is followed by strong climate policy action.

## Low carbon transition plan

**Impact of the Covid-19 on the low-carbon transition plan.** The main elements likely to undermine energy transition efforts are (i) Health crisis and rising unemployment; (ii) Transition plan investment at risk; (iii) Drop of oil price; (iv) Investment in innovation technology at risk; and Renewal energy projects at risk.

**Covid-19 as an engine for low-carbon transition.** The policies put forward to revive the post-COVID economy should support this energy transition in a win-win approach because it is possible to revive the economy while reducing GHG emissions. Moreover, it is possible to link some of the measures taken for the Covid-19 pandemic and the post-Covid-19 economic plan with a number of measures of the enhanced NDCs. The table below presents the link between the government Covid-19 response plan and the eNDC measures. At least 12 measures of the eNDC are directly link with the Government post-Covid-19 economic plan. The energy sector represents about 70% of these measures with also one measure in transport and 8 in the energy production sector. One eNDC measure from the agriculture and another one from the waste management are contributing directly to the Government post-Covid-19 economic plan.

## Recommendations

**Recommendation 1:** The North Macedoni government should continue its strong support to the implementation of the eNDC measures. Doing so, the other economic agents (private sector, household,...) of the country will follow.

**Recommendation 2.** The government should use the Malus-Bonus policy to bring the private sector on board for the implementation of the eNDC as an important partner. The Malus-Bonus policy would drive the private

sector to do business sustainably and to drive innovation, competitiveness, risk management and growth.

**Recommendation 3.** Household should be educated to implement sustainable behavior in their daily live (heating method, waste management,...). This should be done through the PAM13: Public awareness campaigns and network of EE info centers. Increase the number of campaigns in response to the lack of knowledge about the benefits of the EE through the promotion of an efficient use of energy by small energy customers, including domestic customer, and train the employees in the public institutions at the central and local level.

**Recommendation 4.** In terms of most targeted groups, it is recommended that support go to single women aged 65+ in the first place. This support can be designed in form of awareness campaign (climate change literacy) and financial support. In terms of heating coverage, it is recommended to accelerate the effort of generalization of the use of central district heating as the main preference of the population specially in the city of Skopje. The next groups to be supported include the single mothers, fathers of minors and household below the poverty line

**Recommendation 5.** Considering the importance of the issues related to water resources for the Macedonian population, it is recommended to update knowledge on the impacts of climate change on water resources.

**Recommendation 6.** As part of the eNDC measures to provide awareness campaign or training, special efforts should be made to promote the inclusion of women in informal jobs among the target clientele.

**Recommendation 7.** As part of the gradual implementation of eNDC measures for households, priority should be given to households with 3 or more children as these are among the most vulnerable groups.

**Recommendation 8.** Mitigation responses must be more gender responsive. To do so, the analysis of the needs, priorities, roles and experiences of women and men must be done. Also, one needs

to integrate specific actions to address any gender inequalities that may have emerged from that analysis.

**Recommendation 9.** During this period of health crisis, it is crucial to continue efforts to raise awareness among the population about the importance of environmental issues in general and the fight against climate change, in particular.

**Recommendation 10.** The promotion of the North Macedonia CCM Plan to be implemented must be done, as it is a powerful tool for its participation in the achievement of European energy transition objectives.

**Recommendation 11.** In order to have a clearer and more complete understanding of the COVID-19 crisis on the energy transition plan of North Macedonia, it is recommended to carry out an analysis of the impacts of the crisis on the sectors targeted by the CCM Plan.

**Recommendation 12.** In the context of the country's economic recovery, efforts should be made to prioritize, and finance projects needed for the enhanced NDCs. Thus, these investments would promote the achievement of two major objectives of the country, namely a strong economic recovery and a significant contribution to GHG reduction efforts, which are essential in the context of the accession process to the European Union.

**Recommendation 13.** In order to optimize the various public policies put forward by the North Macedonian government and to promote compliance with the commitments it has made in the energy transition process, it is recommended to broaden the scope of the analysis of the impact of the COVID-19 crisis to environmental issues, paying particular attention to issues related to water resources (quality and quantity), biodiversity, air quality as well as agricultural and forest environments.

**Recommendation 14.** In implementing actions to revive the economy, it is important to adopt targeted measures for vulnerable groups, adapting them in particular to their education level and ensuring that citizens engaged in informal employment are also included, especially women in the agricultural sector

