Government of the Republic of North Macedonia

ACCELERATING COAL TRANSITION INVESTMENT PLAN FOR THE REPUBLIC OF NORTH MACEDONIA

-Pelagonia and Southwest regions-

DRAFT

Skopje, December 2023

Disclaimer: Studies supporting the IP drafting process are still ongoing

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Abbreviations:

ACT	Accelerating Coal Transition
AD	Akcionersko Drushtvo (Joint Stock Company)
AFD	Agence Française de Développement
AQ	air quality
ASB	Advisory for Small Businesses
AU	Administrative Unit
BUR	Biennial Update Reports
CapEx	Capital Expenditure
CfD	Contract-for-Differences
CIF	Climate Investment Funds
CIFWB6	Chamber Investment Forum – Western Balkan 6
CHP	Combined Heat and Power Plant
CSO	Civil Society Organization
CSP	Competitiveness Support Programme
DBNM	Development Bank of North Macedonia
DSO	EVN Distribucija
DTIDZ	Directorate for Technological Industrial Development Zones
EBRD	European Bank for Reconstruction and Development
ECS	Energy Community Secretariat
EE	Energy Efficiency
EEA	European Economic Area
EEF	Energy Efficiency Fund
EEP	Elaborate for Environmental Protection
EIA	Environmental Impact Assessment
ENDC	Enhanced Nationally Determined Contributions
ENEF	Enterprise Expansion Fund
EEF	Energy Efficiency Fund
ERC	Energy Regulatory Commission
ESA	Employment Service Agency
ESA	Environmental and Social Assessment
ESAP	Environmental and Social Action Plan
ESM	Elektrani na Severna Makedonija
ESP	Environmental and Social Policy
EU	European Union
EUD	European Union Delegation
FEZ	Free Economic Zones
FiT	feed-in tariff
FiP	Feed-in-premium
FITD	Fund for Innovation and Technology Development
FOD	Factory for equipment and parts
FORT	Factory for maintenance, repair, and transport
G&G	Green & Growth
GCF	Green Climate Fund
GDP	Gross Domestic Product
GFF	Green Finance Facility
GHG	Greenhouse gases
GiZ	German Agency for International Cooperation
GRNM	Government of the Republic of North Macedonia
GVA	gross value added
HPP	hydropower plants
ICT	Chamber of North Macedonia
IFC	International Finance Corporation
IP	Investment Plan

IPPG	Investment Plan Preparation Grant
IPPs	Independent Power producers
IRF	Integrated Results Framework
JTD	Just transition diagnostic and roadmap
JTR	Just Transition Roadmap
LCA	Law on Climate Action
LEAPs	Local Environmental Action Plans
LQ	Location quotient
LSG	Local Self Governmental Units
LURA	Land Use Repurposing Assessment
M&R	Monitoring and Reporting
MAFWE	Ministry of Agriculture, Forestry and Water Economy
MASIT	ICT Chamber of North Macedonia
MDBs	Multilateral Development Banks
MED	Ministry of Education
MEMO	National Electricity Market Operator
MEPSO	Electricity Transmission System Operator of North Macedonia
MF	Ministry of Finance
MIZ	municipal industrial zones
MLSP	Ministry of Labour and Social Policy
MoEPP	Ministry of Environment and Physical Planning
MoES	Ministry of Education and Science
MSMEs	medium-sized enterprises
MTC	Ministry of Transport and Communications
NC	National Communications
NDC	Nationally Determined Contributions
NEAP	National Energy and Climate Plan
NECP	National Energy and Climate Action Plan
NGO	Non-governmental Organisation
NIC	National Investment Committee
NTS	Non-technical Summary
OECD	Organisation for Economic Cooperation and Development
OEMVP	Economic Chamber of North-West Macedonia
OG	Official Gazette
PAP	Project Affected People
PEEB	Energy Efficiency in Buildings
PIT	Personal Income Tax
PIU	Project Implementation Unit
PP	Power Plant
PPAs	Power purchase agreements
PPCA	Powering Past Coal Alliance
PR	Performance Requirements
PSEEP	Public Sector Energy Efficiency Project
PV	Photovoltaics
PVPP	Photovoltaic Power Plant
R&I	research and innovation
RCF	Regional Challenge Fund
RCVET	Regional Vocational Education and Training Centers
RE	renewable energy
REEP	Regional Energy Efficiency Programme
REMIT	Regulation on Wholesale Energy Market Integrity and Transparency
RES	Renewable Energy Sources
RNM	Republic of North Macedonia
RSPV	rooftop solar PV
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goals
SEA	Secretariat for European Affairs

SEP	Stakeholder Engagement Plan
SOEs	State-Owned Enterprises
SPP	Single Project Pipeline
SSE	State Secretary for Energy
SSO	State Statistical Office
TFC	Trust Fund Committee's
TIDZ	Technological Industrial Development Zone
TPP	Thermal Power Plant
TPPs	Thermal Power Plants
TSO	Transmission Service Operator
UCPTE	Union for the Coordination of Production and Transmission of Electricity
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value Added Tax
VET	vocational education providers
WB	World Bank
WB6	Western Balkans 6
WBIF	Western Balkans Investment Fund
ZELS	Association of the Local-Self Governments of North Macedonia

Executive Summary

1. The Accelerating Coal Transition (ACT) Program was established by the Climate Investment Funds (CIF) in March 2021 as a holistic toolkit to support countries transitioning from coal, tackling challenges linked to three pillars: governance, people and communities, and infrastructure. North Macedonia was selected as an ACT pilot country on February 1, 2023, and invited to develop an Investment Plan (IP) in collaboration with relevant CIF partner multilateral development banks (MDBs), namely, European Bank for Reconstruction and Development (EBRD – lead), World Bank (WB), and International Finance Corporation (IFC). This IP, prepared by the Government of North Macedonia, is a business plan proposing areas for ACT-financed investments and technical assistance and exploring the possibility of securing complementary co-financing from bilateral, multilateral, and private sources.

2. In its enhanced Nationally Determined Contributions (NDC), North Macedonia has set a target to decrease GHG (greenhouse gas) emission by 52% or achieve a net reduction of 82% GHG emissions by 2030 compared to 1990 levels. The mitigation actions for the energy generation sub-sector aim to achieve GHG emission reductions of 1,778 Gg CO_2-eq by 2030.[1] In 2022, over 54% of the country's electricity was generated from the two coal-fired thermal power plants (TPPs): Bitola with installed capacity of 699MW and Oslomej with 125MW.[2] These TPPs play a key role for the country's energy security. However, they are also the biggest emitters in the country, responsible for c.2.7 million tonnes CO_2, 113,823 tonnes of SO_2, and 4,202 tonnes of dust per year.[3] While the recent pandemic, geopolitical and energy crises have resulted in some delays in the closure of these plants (the NDC implied a phase-out of Oslomej by 2023 and Bitola by 2027), the country has recently reaffirmed its commitment to achieving its ambitious NDC target, primarily via complete coal phase-out before 2030. This ambition is on par with the Powering Past Coal Alliance[4] recommended phase-out dates for Organisation for Economic Cooperation and Development (OECD) member states.

3. While North Macedonia is committed to a coal phase out, it faces several key challenges. The biggest challenge is to maintain energy security during the green energy transition. Additionally, North Macedonia belongs to the group of import dependent countries. In 2022, it imported circa 2.2 TWh of electricity,[5] making it valuable for outside shocks. Pairing renewables with storage and other baseload solutions is essential to ensure system stability. Second, it needs to scale up the deployment of renewables and speed up grid investments to enable the displacement of coal capacities with low-carbon sources, while implementing demand side measures through energy efficiency programmes. Third, while the green economy transition is expected to create net economic gains, people, and businesses in the Southwest and Pelagonia regions may be affected unevenly due to reliance on coal value chains. It is important to ensure the transition is just by providing socioeconomic opportunities to people employed in coal power plants, mining, and relevant supply chains (currently c. 5,000), as

1 Enhanced Nationally Determined Contributions 2021 p.17 https://unfccc.int/sites/default/files/NDC/2022-06/Macedonian%20enhanced%20NDC%20%28002%29.pdf

2 Energy and Water Services Regulatory Commission of the Republic of Macedonia (ERC) Annual report 2022 erc.org.mk/odluki/2023.04.26_RKE GI 2022-FINAL ENG VERSION.pdf

3 Reporting on Combustion Plants to the European Environment Agency (as of March 2023) https://cdr.eionet.europa.eu/mk/eu/energycommunity/

4 Powering Past Coal Alliance https://poweringpastcoal.org/

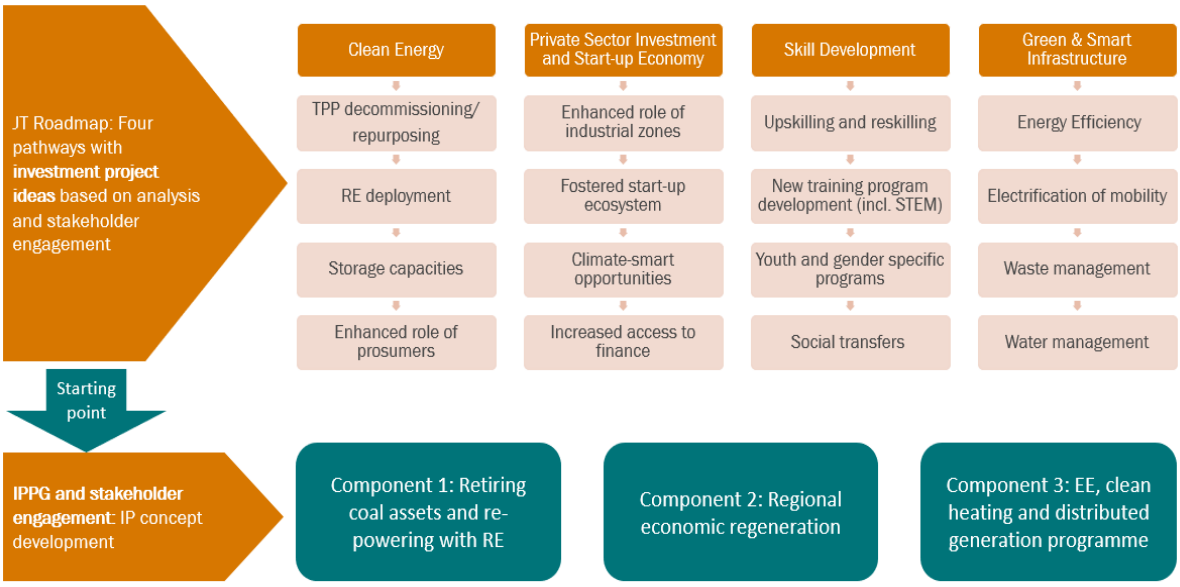
5 Energy and Water Services Regulatory Commission of the Republic of Macedonia (ERC) Annual report 2022 erc.org.mk/odluki/2023.04.26_RKE GI 2022-FINAL ENG VERSION.pdf

well as broader communities, including women and youth, poor and disadvantaged households. Fourth, upstream land repurposing for coal mines and decommissioning/repurposing of power plants will require support for environmental remediation.

4. Investment mobilisation is critical to support the enhanced NDC's emissions reduction ambition. To achieve this ambition, the enhanced NDC envisions investment of EUR 25,031 million, out of which EUR 24,862 million in energy, EUR 110 million in agriculture, and EUR 58,6 million in waste between 2020 – 2030, with circa 85% coming from the private sector.[6] In this context, support from MDBs and the donor community is essential to scale up climate finance and enable the transition.

5. The Just Transition Roadmap (JTR),[7] adopted by the Government in June 2023, provides socio-economic input into the IP. JTR introduces scenarios and socio-economic measures to ensure the transition benefits are shared and to support vulnerable regions, communities, and workers from falling behind. As a guiding document for the just transition in North Macedonia, it envisions an institutional infrastructure to coordinate and implement the just transition-related activities.

Figure 1Just Transition Roadmap Guiding development of ACT IP



6. To overcome the challenges of financing the just transition while ensuring energy security, North Macedonia presents this ACT Investment Plan, based on the following Theory of Change:

If North Macedonia takes a comprehensive approach, involving retiring coal-fired TPPs, investing in renewables, grid, and storage, promoting energy efficiency, clean heating, economic regeneration and just transition for affected workers and communities, guided by strong governance structures, ***then*** it can accelerate coal transition and reduce emissions and local air pollution, while ensuring energy security, fostering climate-smart and inclusive economic regeneration of Southwest and Pelagonia regions with a skilled green workforce, and empowering local communities to participate in and benefit from green transition.

6 NDC Implementation Roadmap for North Macedonia 2020-2030 p.16
https://api.klimatskipromeni.mk/data/rest/file/download/c86929c13f43f00f201b38ef166822904cf3568a881e997bc608433de987eb8f.pdf
7 Just Transition Roadmap – Republic of North Macedonia May 2023 https://www.economy.gov.mk/mk-MK/news/just-transition-roadmap.nspx

7. To this end, the plan targets a financial package of USD 676.3 million. The USD 85 million in grants and concessional loans from CIF ACT funding is expected to leverage USD 471.3 million from MDBs and USD 35 million of public sector investment, as well as mobilise a further USD 85 million in private sector investment. This will be distributed across three IP components, targeting Governance, People and Communities and Infrastructure pillars:

- Component 1: Retiring coal assets and re-powering with RE
- Component 2: Socio-economic Regeneration of Pelagonia and Southwest regions;
- Component 3: Energy efficiency, clean heating, and distributed generation programme.

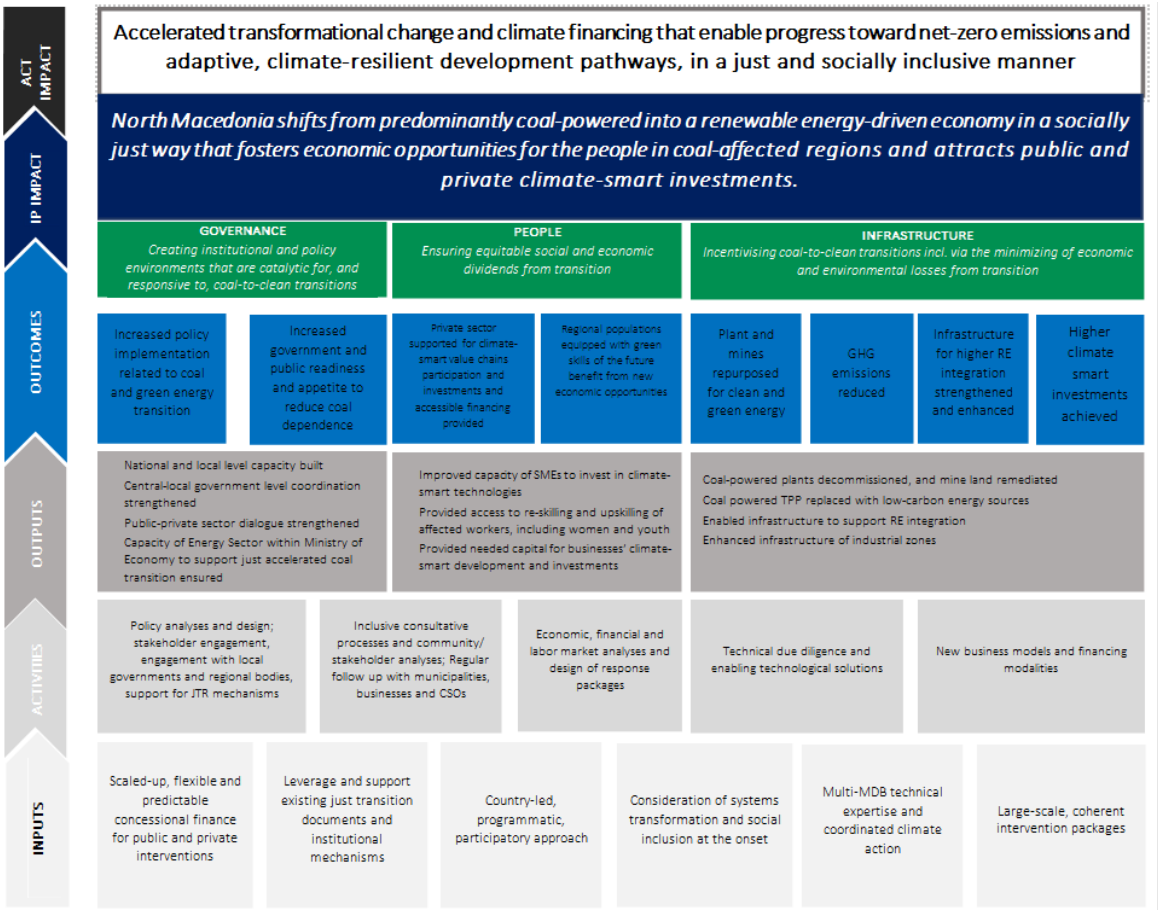
Table 1 summarises ACT IP's indicative financial plan, while Figure 2 presents an expected IP impact framework.

*Table 1 Indicative Financial Plan for North Macedonia (USD million) **

Investment Plan Components	MDBs	MDB share	CIF ACT	Private Sector	Gov/ SOE/ other	Total	Pillars		
							Infrastructure	People	Governance
PROJECT 1: RETIRING COAL ASSETS AND RE-POWERING WITH RE									
A: Powerplant retirement, mine remediation and mine repurposing	WB, EBRD	110	(c) 25 (g) 0.5		35	170.5	V		V
B: PROSPECT: Providing Renewable Opportunities through Solar and Education in Coal Territories	EBRD, IFC	230	(g) 1.8	75		306.8	V	V	V
C: PowerHub: Grid Strengthening, Batteries, Training for Tomorrow	EBRD, IFC, WB	75	(c) 27 (g) 2.5	10		114.5	V	V	
PROJECT 2: SOCIO-ECONOMIC REGENERATION OF PELAGONIA AND SOUTHWEST REGIONS									
A: Green & Growth programme for SMEs	EBRD	5.3	(c) 2.7 (g) 1.95			9.95	V	V	
B: Revitalise: industrial zones for economic regeneration	EBRD, WB	10	(c) 5.5 (g) 0.5			16	V	V	V
C: Climate-smart economic regeneration programme	EBRD, IFC	22	(c) 2.7 (g) 0.65			25.35		V	
PROJECT 3: ENERGY EFFICIENCY (EE), CLEAN HEATING, AND DISTRIBUTED GENERATION PROGRAM									
A: ECOBOOST: Empowering Coal Communities with Efficient and Renewable Lending	EBRD	8	(c) 5.6			13.6	V	V	
B: EcoCommune: Community-Centric Clean Energy Initiative	WB	11	(c) 8 (g) 0.6			19.6	V	V	
IP Total		**471.3**	**(c) 76.5 (g) 8.5**	**85**	**35**	**676.3**			

**Any financial commitments from the Investment Plan Components, especially the funds that will be borrowed from MDBs as well as the CIF funding that will be channelled through MDBs, will always be subject to separate contractual arrangements defining the applicable terms and conditions, to be entered into in accordance with the respective mandates, and the laws, rules, regulations, policies and procedures applicable to the respective Parties signing the agreements therefore.*

Figure 2 ACT IP Impact framework North Macedonia



8. ACT IP is complementary and builds upon the related efforts of involved MDBs and other development partners. For example, the **EBRD** has been investing in coal mine land repurposing to solar PV and grid upgrades; it has been also channeling financing to local SMEs, and for residential energy efficiency via partner financial institutions. It also offers technical assistance support, including in decarbonisation planning for ESM, market mechanisms for RE deployment, human capital development and workforce reskilling for coal value chain employees. The **World Bank (WB)** is implementing the Public Sector Energy Efficiency Project (PSEEP) focusing on energy efficiency and renewable investments in public sector buildings including by establishing an Energy Efficiency Fund (EE Fund) under the Development Bank of North Macedonia (DBNM). WB is also preparing a new investment project to support climate resilient planning and investment by municipalities as well as air quality (AQ) improvements in targeted urban areas in North Macedonia, including municipalities of Bitola and Kichevo, combining capital investments and incentive schemes for households to replace highly polluting solid-fuel stoves and boilers with more efficient and cleaner heating options. WB has also completed a study to support the Government in designing a framework for the acceleration of rooftop solar PV (RSPV) deployment, including the design of potential financing mechanisms. **IFC** supports the Directorate for Technological Industrial Development Zones (DTIDZ) in attracting investments in advanced manufacturing sectors, targeting sustainable industrial zones to host climate-friendly industries and help local companies to better integrate into global value chains, by greening their operations. Other development partners in North Macedonia actively support the accelerated coal transition in investments, capacity building, and technical assistance (Details in Annex 6).

1. Country Context

1.1 North Macedonia's Macroeconomic and Social Overview

9. The Republic of North Macedonia is a territorially small (25,713 km^2), landlocked country located on the Balkan Peninsula, with a population of 1.8 million people as per the latest census from 2021. The agricultural land covers 50% of the surface area, while forests cover about one-third of the country. The country has a diverse climate with eight climatic regions. North Macedonia is divided into eight administrative regions: Eastern, Northeastern, Pelagonia, Polog, Skopje, Southeast, Southwest, and Vardar regions, 80 municipalities plus the capital – the City of Skopje.

10. In 2005, North Macedonia started its EU accession process, which presents a top strategic priority for the country. The first Intergovernmental Conference on accession negotiations took place in July 2022, following the approval of the Negotiating Framework by the European Council. The bilateral dialogue between the EU and North Macedonia encompasses the alignment with the EU *acquis* as well as the progress on the fundamental reforms launched by the country. This reform agenda is complemented by a gradual shift to greening the economy, decreasing pollution and human impact on the environment, and ensuring integration of the regional transport and energy infrastructure with Europe. Over the upcoming period, the country is also expected to accelerate the implementation of the Economic and Investment Plan and the Green Agenda for the Western Balkans to align with the European Green Deal. Acceleration of low carbon transition and reduction of air pollution require urgent attention to enable North Macedonia's sustainable economic development, create new economic opportunities, reduce transition risks, and improve public health.[8]

11. As a European Union (EU) candidate country, North Macedonia has undergone strategic reforms. These reforms have resulted in solid macroeconomic fundamentals, job creation, and an open economy that increasingly attracts foreign investment. However, Government institutions have more challenges to tackle along the reform path, strengthen state institutions, address deficiencies in investment policies, improve business regulations and environment to leverage untapped potential of the country's geographical location and natural endowments, and enable access to a high quality of education and skills needed for the job market, and more equal access to economic opportunities.[9]

12. The macroeconomic situation in North Macedonia deteriorated substantially due to the COVID-19 pandemic and the commodity price shock following Russia's invasion of Ukraine. GDP contracted by 4.7% in 2020. Annual inflation reached 19% in September 2022, averaging 14% in 2022 and expected to be 8.6% for 2023. Despite a continuous increase in the minimum wage, effective the real wage growth turned negative in May 2022.[10] Macroeconomic stability is being supported by the

8 NECP 2022 https://www.economy.gov.mk/content/Official%20NECP_EN.pdf

9 Republic of North Macedonia: Request for an Arrangement under the Precautionary and Liquidity Line-Press Release; Staff Report; and Statement by the Executive Director for Republic of North Macedonia. 2022 (IMF 2022) https://www.imf.org/en/Publications/CR/Issues/2022/11/29/Republic-of-North-Macedonia-Request-for-an-Arrangement-under-the-Precautionary-and-525935

10 EBRD Transition Report 2022-2023 North Macedonia https://www.ebrd.com/transition-report-2022-23

managed floating exchange-rate regime, backed by sizeable foreign-exchange reserves of EUR. [11] Real GDP growth was 2.2% in 2022 and is projected to average 2.3% for 2023 by the Ministry of Finance. Overall, economic growth remains low after taking a hit in early 2022, and consumer confidence continues to decline.[12] Industrial production declined by 2% in July 2023 as mining and manufacturing lost ground while energy production intensified.[13] Finally, with the public debt accounting for 55.8 % of GDP in September 2023 and a projected public deficit of 4.8% in 2023, North Macedonia is below the 60% public debt ceiling and surpasses the public deficit ceiling of 3% according to the Maastricht criteria.[14] This limits the country's borrowing capacity and creates an impediment to the EU accession process.

Figure 3 Budget balance and public debt – Ministry of Finance (as of October 2023)

Table 2 Key Macroeconomic Indicators - Ministry of Finance North Macedonia (as of October 2023) [15]

Key macroeconomic indicators and projections

	2016	2017	2018	2019	2020	2021	2022	2023*
Real GDP growth, %	2.8	1.1	2.9	3.9	-4.7	3.9	2.1	2.5
Nominal GDP, million EUR	9,657	10,038	10,744	11,262	10,852	11,690	12,898	14,396
Average annual inflation, %	-0.2	1.4	1.5	0.8	1.2	3.2	14.2	8.9
Budget balance, % of GDP	-2.7	-2.7	-1.8	-2.0	-8.0	-5.4	-4.5	-4.8
General government debt, e.o.p, % of GDP	39.9	39.4	40.4	40.5	50.8	52.0	51.0	48.2****
Current account balance, % of GDP	-2.6	-0.8	0.2	-3.0	-2.9	-3.1	-6.0	-4.2
Average unemployment rate, %	23.7	22.4	20.7	17.3	16.4	15.4	14.4	14.0
Average exchange rate MKD/EUR	61.6	61.6	61.5	61.5	61.7	61,6	61.6	61.6
Key monetary policy rate, %	3.73	3.27	2.92	2.29	1.65	1.29	2.46	5,75**
Foreign reserves, e.o.p., % of GDP	27.1	23.3	26.7	29.0	31.0	31.2	29.9	27,1***

*MoF projections, unless otherwise noted

**Average monetary policy rate for January-October 2023

***Actual for September 2023, ratio based on MoF projections

****Actual for Q3- 2023

11 Republic of North Macedonia: Request for an Arrangement under the Precautionary and Liquidity Line-Press Release; Staff Report; and Statement by the Executive Director for Republic of North Macedonia. 2022 (IMF 2022) https://www.imf.org/en/Publications/CR/Issues/2022/11/29/Republic-of-North-Macedonia-Request-for-an-Arrangement-under-the-Precautionary-and-525935

12IMF 2022

13 World Bank Western Balkans Regular Economic Report September 2023

https://documents1.worldbank.org/curated/en/099101623051741490/pdf/P50064801939bc0a00a0d2077a3883b52c9.pdf

14 World Bank Western Balkans Regular Economic Report September 2023

https://documents1.worldbank.org/curated/en/099101623051741490/pdf/P50064801939bc0a00a0d2077a3883b52c9.pdf

15 Ministry of Finance Monthly Newsletter North-Macedonia-Monthly-Newsletter-October-2-9.pdf (finance.gov.mk)

13. North Macedonia is an export-oriented economy, with its biggest trade partners being EU member states. In terms of product exports, North Macedonia exports mostly catalysts with precious metal or precious metal compounds as the active substance, ignition, and other wiring sets (used in vehicles, aircraft, or ships), and flat-rolled products of iron or non-alloy steel. North Macedonia predominantly imports petroleum oils and oils obtained from bituminous minerals, other metals of the platinum group and its alloys, platinum, and platinum alloys, and colloidal precious metals, compounds, inorganic or organic, of precious metals.[16] According to the total external trade volume in the period January-September 2023, the most important trade partners of the Republic of North Macedonia were Germany, Great Britain, Greece, Serbia, and China. According to the State Statistical Office (SSO) data, the total value of exported goods from the Republic of North Macedonia in the period January-September 2023 amounted to EUR 6.3 billion, a 1.3% increase compared to the same period in 2022. The value of imported goods in the same period was EUR 8.3 billion, or 8.5% less than the same period in 2022. Thus, the trade deficit in the period January-September 2023 was -24.3%.[17] Trade volumes by industrial category are presented in Table 3.

Table 3 Volume of export-import North Macedonia 2018-2023[18]

External trade grouped according to Classification of products by activity, cumulative data Value in EUR (thousand)							
Period		2023 (M01-M08)	2022	2021	2020	2019	2018
Total	export	5,502,897	8,299,582	6,969,766	5,781,084	6,433,300	5,872,484
	import	7,299,621	12125228	9,648,126	7,599,420	8,441,049	7,676,329
Products of agriculture, forestry, and fishing	export	206,438	276,923	267,901	260,721	271,459	231,668
	import	105,130	172,255	152,600	140,042	138,530	133,804
Mining and quarrying	export	161,716	269,565	228,639	176,441	218,921	225,627
	import	253,385	433,634	216,396	176,736	203,943	156,233
Manufactured products	export	4,905,415	7,419,424	6,308,946	5,214,822	5,808,804	5,309,836
	import	6,724,588	10,851,282	8,920,749	7,070,581	7,889,339	7,203,598
Electricity, gas, steam, and air conditioning	export	161,677	210,086	40,865	43,512	34,966	26,479
	import	139,675	579,028	280,734	154,120	135,638	113,479
Water supply; sewerage, waste management, and remediation services	export	57,858	111,130	115,584	79,405	88,265	69,387
	import	55,134	65,040	62,135	42,271	56,124	52,374
Information and communication services	export	5,523	5,748	2,915	2,980	4,639	5,561
	import	6,248	11,757	8,933	9,772	9,935	12,220
Professional, scientific, and technical services	export	1	0	0	0	12	0
	import	16	21	9	39	11	10
Arts, entertainment, and recreation services	export	232	153	139	121	1,525	87

14. Demographically, North Macedonia has an aging population. Per the latest census (2021), the total population of the country stands at 1,836,713 individuals (declined by 9% since 2002). Of these, 50% are females and 49% are males. The share of people from the age group over 65 increased from

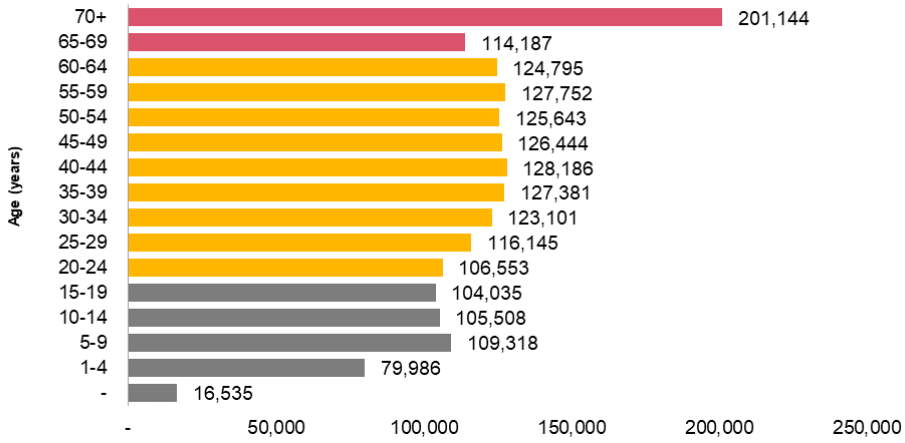
16 State Statistical Office – External Trade August 2023 https://www.stat.gov.mk/pdf/2023/7.1.23.13_mk.pdf

17 SSO External Trade January-May 2023 https://www.stat.gov.mk/pdf/2023/7.1.23.13_mk.pdf

18 SSO Export Statistics 2023 Државен завод за статистика: Стоковна размена со странство, јануари – август 2023 година (stat.gov.mk)

11% in 2002, to 17% in 2021, while the number of households has increased as per the 2021 census to 598,632 (6% increase from 2002). The demand for eldercare that accompanies an ageing population has a particular impact on the labour force participation of women, but also on the availability of labour for market needs.

Figure 4 Population in the Republic of North Macedonia by age – SSO - Census 2021



15. At 14%, North Macedonia has historically the lowest, yet a high unemployment rate and a persistent gender gap in the labour market. The unemployment decline in North Macedonia however was due to lower activity rate (down to 55% in 2022 from 57% in 2017), instead of increased employment rate, but also a drop in female and youth unemployment.[19] Still, the employment rate of young people (age 15-29) was 34%, well below the EU rate of 49% in 2022.[20] The most significant percentage of the active population (7%) is within the 40-44 age group (128,186 people). The second largest is the population aged between 55 and 59 (127,752). Increasingly also, people work in the services sector at the expense of agriculture. The employment gap between men and women amounts to 18% and almost twice as high as in the EU in 2022. When looking at economic participation, in 2023, North Macedonia has **low parity in economic participation and opportunity and** ranks 108 out of 146 in this parameter21 The gap specially widens when looking at economic participation and opportunity in legislators, senior officers and managers. Only 21% of firms in North Macedonia have female top managers, and only 20% of firms have female majority ownership. This shows that there are not many women in leadership positions in North Macedonia. Furthermore, sharing of responsibilities within the household in North Macedonia is unbalanced. Women spend on average three times more time (3.7 hours) per day than men (1.3 hours) on unpaid domestic and care work.[22] Finally, income inequality is one of the highest in Europe (GINI 33.5 in 2019).[23]

19 World Bank https://data.worldbank.org/indicator/SI.POV.GINI?locations=MK

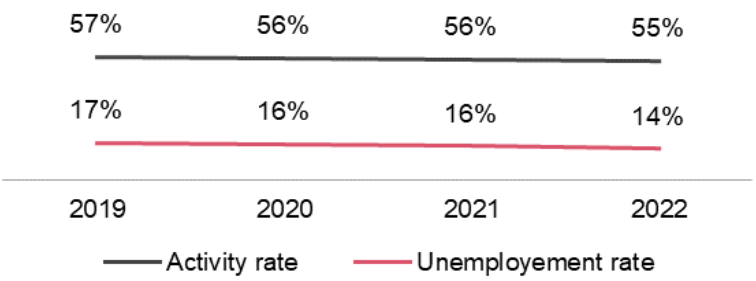
20 ILO 2022 https://www.ilo.org/budapest/countries-covered/fyrm/WCMS_461968/lang--en/index.htm

21 World Economic Forum, 2023, Global Gender Gap Report

22 EBRD Gender SMART diagnostic tool

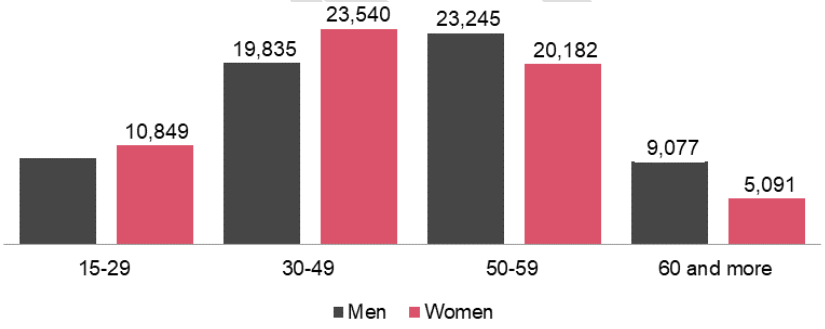
23 GINI Index – World Bank 2019 Gini index - North Macedonia | Data (worldbank.org)

Figure 5 Activity and unemployment rates (State Statistical Office)



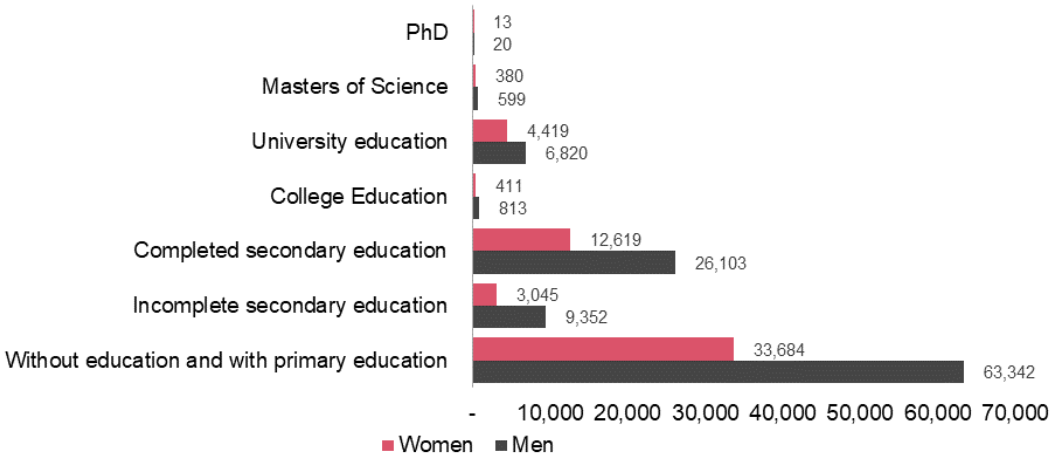
As per data from the Employment service agency of North Macedonia, most of the unemployed people or 43,427 are in the age group of 50-59. This can indicate that older workers in the job market are facing challenges in finding or retaining employment, as well as lower mobility across jobs and sectors. This may be due to encountering age-related biases or difficulties in adapting to changing job requirements.

Figure 6 Number of unemployed people by age, as of 30 June 2023 (Employment service agency of the Republic of North Macedonia)



As presented in Figure 7, more than 148,000 people are those with maximum completed secondary education. This may suggest a need for policies that bridge the gap between education and job market requirements to enhance employability.

Figure 7 Number of unemployed people according to their level of education as of 30 June 2023 (Employment service agency of the Republic of North Macedonia)



16. Similar to the other Western Balkan Countries (WB6), North Macedonia is facing deficit of skilled labour, skills mismatch and growing migration of workforce. In the EBRD's Business Environment and Enterprise Performance Survey, 14% of respondents deemed an inadequately educated workforce to be a major or severe obstacle to growth in North Macedonia. The skills mismatch is exacerbated by weak human capital development institutional frameworks in the country at national, regional or sectoral levels. Emigration flows toward the European Economic Area (EEA), and Switzerland saw a considerable increase from 2011 to the start of the pandemic in 2020. Permits for employment reasons were by far the fastest-growing permit category; 2019 saw about five times the number of permits issued for remunerated activities compared to 2011. While most migrants from North Macedonia in OECD countries are of working age, there is a significant share of elderly migrants, with 16% of the migrant stock aged 65 and above. About one in five Macedonian migrants in OECD countries are highly educated – the highest rate among the WB6 economies – while 38% are low-educated.[24] North Macedonia has also endorsed the Common Regional Market 2021-2024 Action Plan alongside all the other WB6 economies and, in addition, signed an agreement with Albania and Serbia to launch the Open Balkan initiative.

17. In 2023, North Macedonia ranked 73 out of 146 countries on the Gender Gap Index (0.711).[25] While North Macedonia's overall **Gender Gap Index** has not changed since 2020, the country's ranking has fallen. This indicates that North Macedonia has maintained its status regarding gender issues. Furthermore, as per WEF's global gender gap report 2023, North Macedonia's sub-index of educational attainment is 0.997. Female school enrolment rates, particularly in tertiary education, are higher than that of men. North Macedonia's Health and Survival sub-index is also very high at 0.960. However, North Macedonia has a low score for Political Empowerment (0.283) with a huge gap between men and women in ministerial positions. Additionally, women face **challenges to access to finance** in North Macedonia. While there are near-equal rights in access to land assets and equal rights in access to finance,[26] there is a wide gender gap in different aspects of access to finance. For example,

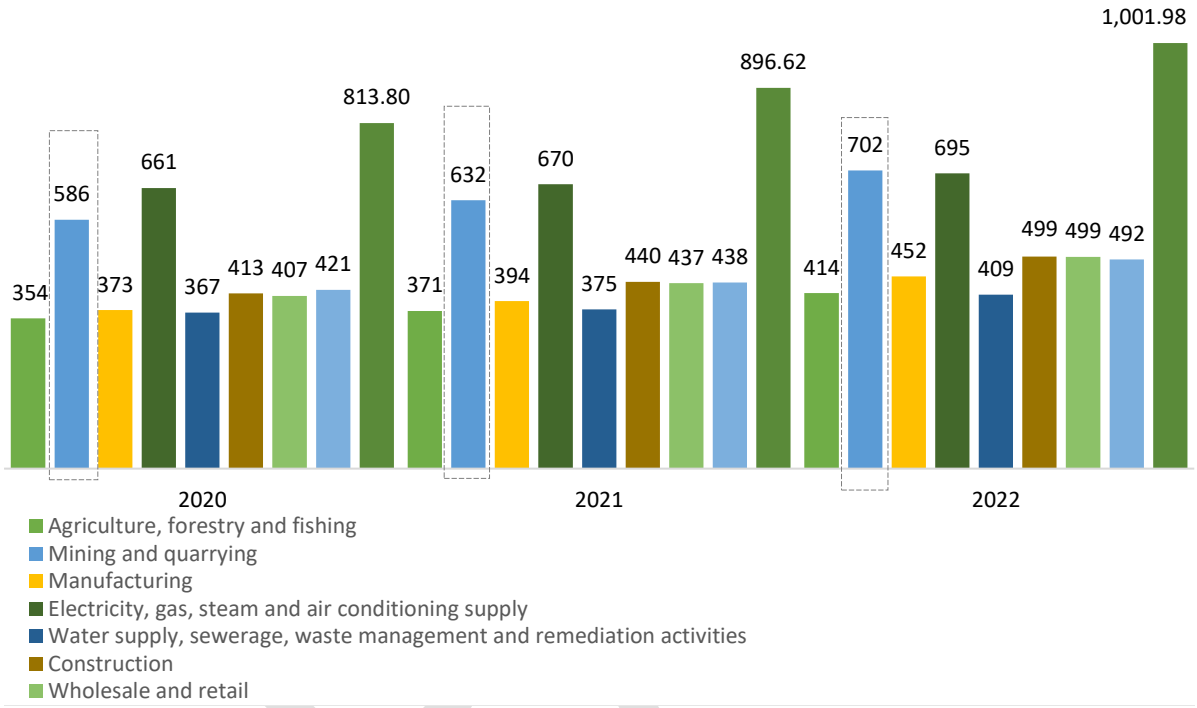
24 Labour Migration In The Western Balkans: Mapping Patterns, Addressing Challenges And Reaping Benefits OECD 2022, p.175 https://www.oecd.org/south-east-europe/programme/Labour-Migration-report.pdf

25 World Economic Forum, 2023, Global Gender Gap Report

26 Same.

only 80% of women have a bank account at a financial institution compared to 91% of men.[27] Similarly, more men borrow from formal financial institutions than women (20% and 24% respectively).[28] Moreover, women are less likely to be self-employed than men (21% of women compared with 29% of men) and own account workers (7% of women compared with 17% of men).

Figure 8 Average net salary per sector (EUR) (PwC ESM study 2023)



18. While the energy transition is expected to bring net benefits for North Macedonian economy, the Pelagonia and the Southwest regions of the country are expected to be affected disproportionally more by the accelerated coal transition, given they host the largest TPPs and are reliant on coal value chains. These two regions contribute with 19% to the national GDP. Yet, the socio-economic challenges present in these two regions mirror national challenges and could be exacerbated by the coal transition if not properly addressed. Gender equality gap also persist in both regions, and women participate less in the economy compared to men. Also, there are a significant gender gaps in access to finance and labour practices, including women's predominant role in unremunerated care work, reducing their ability to engage fully in the economy. Furthermore, a coal-reliant local economy with decent salaries in mining and quarrying (see Figure 8) and well-developed coal value chain can create opposition to a transition that can bring disruption to the sector.

19.Therefore, the Southwest and Pelagonia regions are the focus of this investment plan that proposes activities to turn the transition into an opportunity for these regions to spearhead green transformation in the country, attract higher added value knowledge-intensive and innovative multinational and large domestic companies, and ensure just transition. Instead of exacerbating pre-

27 EBRD Gender SMART diagnostic tool

28 Same

existing inequalities, these activities are used as catalysts to improve access to skills and employment for women and vulnerable groups. While North Macedonia can learn from successful just transition regions such as Ruhr in Germany, and during the process participate in knowledge exchange with other ACT countries, a successful transition in North Macedonia can later on serve as a helpful case study for the rest of Western Balkans, undergoing coal transition processes, and facing similar socio-economic trends.

1.2 National and International Climate Strategies and Plans

20. North Macedonia has dual responsibilities regarding climate change – as an EU candidate member state and a developing country under the UNFCCC. Energy and Climate policies are closely interlinked, as more than 70% of North Macedonia's GHG emissions derive from the energy sector (75% in 2019). The country's dependence on electricity and fossil fuel imports makes the country vulnerable to fluctuations in the volatile energy markets. The international climate commitments and national climate energy actions are ambitious and set the country on the decarbonisation pathway, driven by the goal of coal phase out by the end of the decade, while ensuring energy security (Table 4).

Table 4 Summary of key National and International Climate Strategies and Plans

Climate and energy	General commitments – North Macedonia
United Nations Framework Convention on Climate Change (UNFCCC)	Non-Annex I party - no mandatory greenhouse gas emission targets.
Kyoto Protocol in 2004	Active role in global efforts for GHG emissions reductions, but no mandatory greenhouse gas emission targets.
Paris Agreement (2016 and 2018)[29]	Active role in global efforts for GHG emissions reductions, but no mandatory greenhouse gas emission targets.
Contracting Party of the Energy Community	Implementation of the EU climate and energy *acquis*.
Nationally Determined Contribution (NDC)	Reduce the CO2 emissions from fossil fuel combustion by 36% by 2030 compared to the business as usual (BAU) scenario. Comply with the carbon price of the EU emissions (ETS) trading system until 2027.
Enhanced Nationally determined Contribution (ENDC)	51% reduction in GHG emissions compared with 1990 levels, or 82% net emissions reduction by 2030 compared to 1990 levels, including though retirement of all coal-fired power plants.
National Energy and Climate Action Plan (NECP) in 2022 (update due June 2024) [30]	Coal phase-out by closing the thermal power plants (764MW in total); increase the share of renewables in the electricity production mix; Reduce electricity import dependence (that reached a high 65% in 2021) and preserve the forests as the only carbon sink in the country.
Four National Communications (NC) on Climate Change (latest April 2023).	North Macedonia's commitment to fulfilling its international obligations under the UNFCCC is presented in this Fourth National Communication—plans and measures for emissions reductions in key sectors.
Three Biennial Update Reports (BUR), the last being in June 2021	2050 target of a carbon-neutral continent with the EU through mainstreaming a strict climate policy and reforming energy and transport sectors.
Sofia Declaration – Western Balkan leaders[31]	Aligning with EU Climate Law, including 2050 climate neutrality ambition, set forward-looking 2023 energy and climate targets, continue alignment with the EU Emission Trading Scheme, review and revise, where necessary, all relevant legislation to support progressive decarbonisation of the energy sector and secure full enforcement, notably through the Energy Community; increase the share of renewable energy sources while decreasing and gradually phasing out coal subsidies, actively participate in the Coal Region in Transition initiative for the Western Balkans, develop programs for addressing energy poverty and financing schemes for household renovation and providing basic standards of living.

29 North Macedonia National Communication (NC). NC4.2023 https://unfccc.int/documents/627667

30 NECP 2022 https://www.economy.gov.mk/content/Official%20NECP_EN.pdf

31 Sofia Declaration on the Green Agenda for the Western Balkans 2020 https://www.rcc.int/docs/546/sofia-declaration-on-the-green-agenda-for-the-western-balkans-rn

The Energy Development Strategy (2020) (Energy Strategy)[32]– currently being redrafted	Compliance with the EU's 2030 framework, and its 2050 energy roadmap, including **energy efficiency, with 2040 targets to:** maximise energy savings up to 52% of primary and 28% of final energy; **integration and security of the energy markets:** ensure that North Macedonia is even more strongly integrated into the European markets, to provide the necessary flexibility for higher integration of RES; **decarbonisation:** In the green scenario in 2040, the Strategy reduces greenhouse gas emissions to 61% compared to 2005 or 73% compared to BAU while strongly increasing the use of RES up to 45% in gross final energy consumption; **R&I and competitiveness** minimize the total cost of the system based on the optimization of the lowest prices and l**egal and regulatory aspects:** full compliance with the EnCS *acquis*.
Energy Efficiency Law (2020)[33]	Transposition of the Energy Efficiency Directive 2012/27/EU, Energy Performance of Buildings Directive 2010/31/EC and stipulates preparation of Energy Efficiency Action Plans.
Energy Law (2019)	Transposes the Third Energy Package in the electricity and natural gas sector and the Renewable Energy Directive 2009/28/EC. It allows further unbundling of the distribution and supply of electricity and establishes full liberalization of the electricity market.
The Law on Climate Action (Law or LCA) - under development, to be completed in 2023	Should fully transpose EU climate legislation, enabling low-carbon development and climate change resilience. It is expected to set a profound change in the climate capacities of the country, as well as to enhance cross-sectoral policy coordination and climate mainstreaming.[34]
Long-Term Strategy for Climate Action and Climate Action Plan (Climate Strategy 2021[35]	The Strategy provides a long-term objective quantifying North Macedonia's contribution to the global effort to reduce national net GHG emissions (including Forestry and Other Land Use and excluding MEMO items[36] by 72% by 2050 compared to 1990 levels (or GHG emission reduction of 42% by 2050 compared to 1990, excluding FOLU and MEMO items) and increased resilience of North Macedonia's society, economy, and ecosystems to the impacts of climate change.
Powering Past Coal Alliance (PPCA)[37]	The PPCA is a coalition of national and sub-national governments, businesses, and organisations working to advance the transition from coal power generation to clean energy. It sets out our collective commitment to accelerate the transition from coal to clean energy. North Macedonia and Montenegro are the first from the Western Balkan countries to join the coalition in 2021 by setting coal phase out dates.

21. The National Energy and Climate Plan (NECP), which is under revision, outlines the country's decarbonisation pathway, making North Macedonia firmly committed to the obligations of an Energy Community. The plan's ambitions include coal plant's closure by the end of the decade (2030), introduction of a carbon tax, and a 23% reduction in energy consumption through energy-efficiency measures by 2030, based on a scenario with additional measures (WAM). Independent Power Producers (IPPs)s also need not be privately financed, owned, or operated.[38]

22. Regarding renewable energy sources, North Macedonia, as per the Climate and Energy Plan - NECP (2022) aims that at 38% share of gross energy consumption coming from RE by 2030.[39] In 2020, the country achieved only a 19.3% share.

23. The legal basis for actions related to coal transition and low or zero-carbon strategies are laws and policies related to climate change and energy, presented in Table 5:

32 Energy Development Strategy 2020-2040 https://cdn.climatepolicyradar.org/navigator/MKD/2020/energy-development-strategy-until-2040_ae3e3c2e2f315a8b1e2686fb7c48446d.pdf

33 4th National Energy Efficiency Action Plan (2020-2022) https://economy.gov.mk/Upload/Documents/4NEEAP%20final%20version%2014.04.2021_en%20corected.pdf

34 Long Term Strategy on Climate Change p.15

35 Long Term Strategy on Climate Change https://api.klimatskipromeni.mk/data/rest/file/download/2ba0633b4385d2538862b16572bff16d13ad0895665ee2729d24e177022ace27.pdf

36 MEMO items include emissions from aviation and electricity import.

37 PPCA North Macedonia https://poweringpastcoal.org/members/north-macedonia/

38 ENDC 2021, p. 19

39 NECP 2022, p. 15 and Energy Community 2030 energy and climate targets https://www.energy-community.org/implementation/package/CEP.html

Table 5 Legal basis for coal transition

Sectors	Laws, bylaws, rulebooks
Environment & Climate	Law on Climate Action (Under inter-institutional adjustment, it is expected to be adopted by the end of 2023[40]
	Law on Environment (2005)[41]
Energy	Energy Law (2018)[42]
	Rulebook on energy balances and energy statistics (2015) [43]
	Rulebook on the manner and procedure for monitoring the functioning of energy markets (2019)[44]
	Law on Energy Efficiency (2020) [45]
	Rulebook on Marking Energy Consumption and Other Resources for Energy Products (2016)[46]
	Rulebook on amending the Rulebook on the energy performance of Buildings (2015)[47]
	Decree on eco product design (2011)[48]
	Rulebook on Renewable Energy Sources (2019) (Official Gazette of the RNM no. 112, 3.6.2019)[49]
	Decree on the measures for support of electricity generation from renewable energy sources (2019) [50]
	Decision on the total installed capacity of the preferential producers of electricity (2019) [51]
	Decision on the national mandatory goals for the share of energy generated from renewable sources in the gross final energy consumption and for the share of energy generated from renewable sources in the final energy consumption in transport (2019)[52]

24. The strategic basis and governance structures relevant for the coal and energy transition is presented in Table 6:

40 Law on Climate Action 2023 – to be adopted climateaction-ipaproject.mk

41 Law on Environment 2005 Закон за животната средина (moepp.gov.mk)

42 Law on Energy Efficiency Zakon za energetika_EN1.pdf (economy.gov.mk)

43 Rulebook on energy balances and energy statistics 2015 Службен весник на РМ (slvesnik.com.mk)

44 Rulebook on the manner and procedure for monitoring the functioning of energy markets Службен весник на РМ (slvesnik.com.mk)

45 Law on Energy Efficiency (2020) Zakon za energetska efikasnost.pdf (economy.gov.mk)

46 Rulebook on marking energy consumption and other resources for energy products 2016 ОДЛУКА ЗА ОПРЕДЕЛУВАЊЕ НАЈВИСОКИ ЦЕНИ НА ОДДЕЛНИ НАФТЕНИ ДЕРИВАТИ УТВРДЕНИ СОГЛАСНО МЕТОДОЛОГИЈАТА (economy.gov.mk)

47 Rulebook on amending the Rulebook on the energy performance of buildings (2015) ПРАВИЛНИК ЗА ИЗМЕНУВАЊЕ И ДОПОЛНУВАЊЕ НА ПРАВИЛНИКОТ ЗА НАЧИНОТ НА КОРИСТЕЊЕ НА ЗДРАВСТВЕНИ УСЛУГИ НА ОСИГУРЕНИТЕ ЛИЦА ВО СТРАНСТВО (economy.gov.mk)

48 Decree on Eco-product Design 2011 Microsoft Word - 54264C0761141C41A9FE7DC944DAD77B.doc (economy.gov.mk)

49 Rulebook on Renewable Energy Sources 2019 final_Pravilnik_OIE_28 05 19 bez TC (1) (1)-converted.pdf (economy.gov.mk)

50 Decree on the measures for support of electricity generation from renewable energy sources (2019) final_Pravilnik_OIE_28 05 19 bez TC (1) (1)-converted.pdf (economy.gov.mk)

51 Decision on the total installed capacity of the preferential producers of electricity 2019 final_Pravilnik_OIE_28 05 19 bez TC (1) (1)-converted.pdf (economy.gov.mk)

52 Decision on the national mandatory goals for share of renewable energy sources 2019 т-69 final_Odluka_ucestvo na OIE_05 02 19 (2).pdf (economy.gov.mk)

Table 6 Strategic basis for coal transition

Energy	Climate	Social/youth/gender	Other strategic documents
The Strategy for Energy Development in RNM until 2040 (2019)[53]	Long-term strategy on climate action and action plan[54]	Program for Protection of vulnerable energy consumers for the year 2022[55]	Agenda 2030 and Sustainable Development Goals[56]
Program for financial support for the generation of electricity from preferential producers who use premiums for 2019 (2019)[57]	National Energy and Climate Plan[58]	Promotion of green jobs inserted in the Strategic Plan of the MoEPP for the period 2020-2022[59]	Industrial Strategy of the Republic of Macedonia 2018-2027[60]
Fourth National Energy Efficiency Action Plan61	National Ambient Air Protection Plan in the Republic of Macedonia (2012)[62]	The potential for the creation of new green jobs according to the Fourth National Communication p.158)[63]	Strategy for Regional Development of The Republic of North Macedonia (2021-2031)[64]
	Clean Air Plan - reduce air pollution. Government Strategic Program (2019)[65]	Strategy for Gender Equality (2022 - 2027) (Macedonian version only)[66]	Voluntary National Review (2020)[67]
		Implementation of the Action Plan for integrating gender aspects of responsiveness in the preparation of the 4th National Communication/ 3rd Biennial Update Report (2019-2022)[68]	Statistical research program for the period of 2018-2022[69]

53 The Strategy for Energy Development in RNM until 2040 (2019) https://api.klimatskipromeni.mk/data/rest/file/download/4a5343d50dc1080836144142d925d9f80d71a5545a86b6a9a68218f5cb3cc179.pdf

54 Long-term strategy on climate action and action plan

55 Program for Protection of vulnerable energy consumers for the year 2020 chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.slvesnik.com.mk/Issues/a2bed5b42c36460fbb6b1a8dc4a40dbe.pdf

56 Agenda 2030 North Macedonia https://sustainabledevelopment.un.org/memberstates/Macedonia

57 Program for financial support for the generation of electricity from preferential producers who use premiums for 2019 (2019) chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.economy.gov.mk/Upload/Documents/ilovepdf_com.pdf

58 National Energy and Climate Plan chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.economy.gov.mk/content/Official%20NECP%20-%20MK%20version_11465878.pdf

59 Strategic Plan of the MoEPP for the period 2020-2022 chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.moepp.gov.mk/wp-content/uploads/2014/12/Strateski_Plan_2020-2022_final.pdf

60 Same

61 https://www.economy.gov.mk/Upload/Documents/4NEEAP%20final%20adopted_EN.pdf

62 National Ambient Air Protection Plan in the Republic of Macedonia (2012) chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.moepp.gov.mk/wp-content/uploads/2014/12/Nacionalen-plan-za-zastita-na-vozduh.pdf

63 The potential for the creation of new green jobs ttps://www.economy.gov.mk/Upload/Documents/4NEEAP%20final%20adopted_EN.pdf extension://efaidnbmnnnibpcajpcglclefindmkaj/https://api.klimatskipromeni.mk/data/rest/file/download/1fde7ae390526eab08df8490ae199a7f0597b28f358721a252f2b23f316b3208.pdf

64 Strategy for Regional Development Of The Republic Of North Macedonia (2021-2031) chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://api.klimatskipromeni.mk/data/rest/file/download/47d1a4c089fdd9d4aae62df2c98c56f43ebbf47a7357d85f05d6203d9de1a4ca.pdf

65 Clean Air Plan - reduce air pollution. Government Strategic Program (2019) https://vlada.mk/PlanZaChistVozduh

66 Strategy for Gender Equality (2022 - 2027) (Macedonian version only) chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.mtsp.gov.mk/content/pdf/2022/strategija_/%D0%A1%D1%82%D1%80%D0%B0%D1%82%D0%B5%D0%B3%D0%B8%D1%98%D0%B0_%D0%B7%D0%B0_%D1%80%D0%BE%D0%B4%D0%BE%D0%B2%D0%B0_%D0%B5%D0%B4%D0%BD%D0%B0%D0%BA%D0%B2%D0

67 Voluntary National Review (2020) https://sustainabledevelopment.un.org/memberstates/macedonia

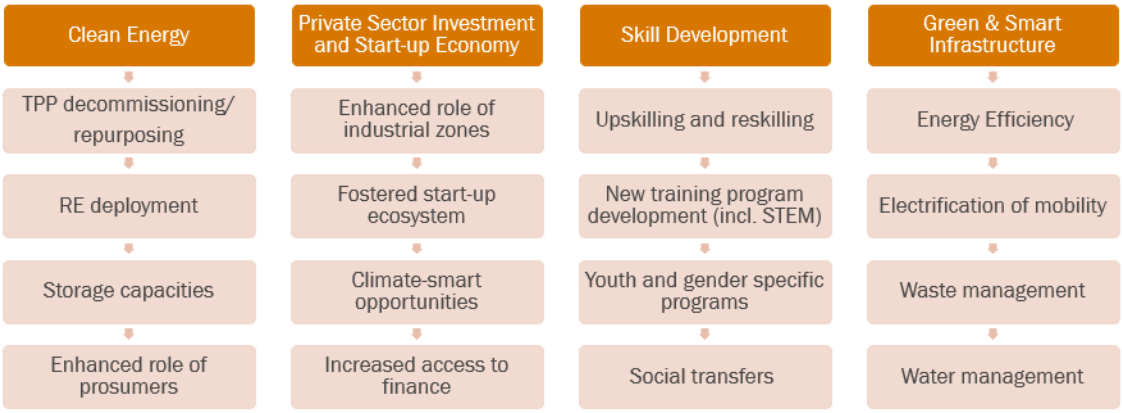
68 Implementation of the Action Plan for integrating gender aspects of responsiveness in the preparation of the 4th National Communication/ 3rd Biennial Update Report (2019-2022) chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://api.klimatskipromeni.mk/data/rest/file/download/b141dae7ccd0361dcbc042fb168ed05eb5b44896950030425f0fbe525d77581e.pdf

69 Statistical research program for the period of 2018-2022 chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.stat.gov.mk/pdf/Programa20182022.pdf

1.3 Governance and Key stakeholders

25. On June 13, 2023, North Macedonia adopted the Just Transition Roadmap. The document focusses on ensuring that the green economy transition benefits are shared, while protecting vulnerable people, regions, and communities from falling behind. The roadmap, supported by the EU Delegation, and the EBRD, targets four pathways, including 1) private sector investments and start-up economy, 2) green and smart infrastructure, 3) clan energy, 4) skills development. It forms the foundations of "people" and "governance" pillars of the IP.

Figure 9 Just transition pathways in the roadmap



26. On the latter, the Just Transition Roadmap outlines the governance structure for the process. It includes: The Minister of Economy who has been already assigned as the National Coordinator for implementing the Just Transition Roadmap as per government decision dated 13 June 2023. A Just Transition Council, chaired by Minister of Economy and composed of Ministers from the following ministries: Ministry of Economy, Deputy Prime Minister in Charge of Economic Affairs, Ministry of Finance, Ministry of Environment and Physical Planning, Ministry of Agriculture and Water Management, Ministry of Transport, Ministry of Education, Ministry of Labour and Social Policy, Ministry of Local Self-Government, Director of ESM, Director of MEPSO, Director of NOMAGAS.

27. The JTR also envisions the establishment of the Just transition Secretariat as an intra-ministerial working body comprising the heads of the three working groups on (1) re-skilling and training, (2) economic transition, and (3) renewable energy and storage created by the Ministry of Economy. It is also recommended that regional forums for just transition are formed in both Pelagonia and Southwest regions, and primarily in most coal-dependent municipalities, Kichevo and Bitola to encourage the regions to be inclusive and comprise various stakeholders to address and reflect on the specific municipality/region's needs.

28. In terms of the key stakeholders, t**he Ministry of Economy – ME, mostly the Energy Sector** is the leading institution responsible for the coal transition mandating over: energy policy, including investments in the energy sector, fossil fuels, energy efficiency, and renewable energy sources; internal market policies under which the standards and policies for road transport vehicles and technical conformity are regulated; mining policies and geological aspects, and industrial and investment policies.

The Office of the Deputy Prime Minister in Economic Affairs is responsible for achieving the Sustainable Development Goals and is a National Designated Entity for the Green Climate Fund (GCF).

The Ministry of Finance (MF) manages the Treasury Single Account, receives all revenues, from which all payments are made on behalf of budget users at the central and local government levels. It is also responsible for accessing concessional finance. Ministry of Finance is responsible for successful management of public finances, to achieve higher economic growth and improve the quality of life of the citizens of the Republic of North Macedonia.

The Ministry of Environment and Physical Planning - MoEPP is responsible for climate change policymaking; it is a focal point for the UNFCCC, and a nationally designated entity for the Kyoto Protocol.

The Ministry of Labour and Social Policy (MLSP) sets social policies, labour policies and policies that tackle unemployment, vulnerable groups, women and youth and social transfers.

The Ministry of Education and Science (MoES) sets education policies, training, lifelong learning, and vocational education.

The Ministry of Agriculture, Forestry and Water Economy (MAFWE) is responsible for designing and implementing agricultural and forestry-related policies and for economically using water resources.

The Ministry of Transport and Communications (MTC) is responsible for transportation licenses for freight and passenger transport, aviation activities, and railways. In addition, the Ministry is responsible for physical planning and the management of construction land.

Local Self Governmental Units (LSG) or municipalities, especially in the affected regions of Pelagonia and Southwest regions play a central role in the just energy transition. They are responsible for local policy making such as urban planning, environmental protection, local economic development, and have their own and shared revenues with central government. LSGs are eligible for sub-sovereign borrowing, depending on the financial condition of the municipality.

Technological Industrial Development Zones (TIDZ) organize and manage the zones and attract investors, creating economic opportunities.

The Municipal Industrial Zones (MIZ) are local development zones which can be established and managed by municipalities and can offer specific incentives such as low land purchase prices and lower communal fees for potential investors.

The Energy Regulatory Commission (ERC) is an independent regulator established in 2003, regulating energy sector, including gas and district heating; it sets energy and water supply tariffs and tariffs for sewerage and wastewater treatment services. The ERC is self-financing based on a levy on sector participants.

29. North Macedonia has a relatively active private sector, academia and CSOs. The role of the private sector is crucial for the accelerated coal transition. North Macedonia's four main business chambers are: Economic Chamber of North Macedonia, Association of Business Chambers, Economic

Chamber of North-West Macedonia (OEMVP), ICT Chamber of North Macedonia (MASIT) and other thematic business associations. There is also an Association of Foreign Investors within the Economic Chamber of North Macedonia. is the Regional Office of the Economic Chamber of North Macedonia. Private sector actors are important as they need to provide training needs and skills gaps in the industry including, where relevant, to coal value chain employees. The education service providers are vital in delivering reskilling and upskilling programs, designed based on assessments of local skills gaps and skills development opportunities. w It also needs to provide the technical expertise for various projects related to the accelerated coal transition. Finally, the civil society sector is one of the most critical stakeholders, as they work with different constituencies in the affected regions, including women and other vulnerable groups. Trade Unions also play a pivotal role in workers' rights protection and labour policies.

2. Accelerating Coal Transition (ACT) Context

30. North Macedonia faces several challenges in accelerating the coal transition: it needs to scale up the deployment of renewables while investing in the grid and preserving energy security. North Macedonia is a net electricity importer (circa 2 TWh p/a vs. 5.5 TWh p/a domestic production). To preserve energy security, the country needs to displace coal-fired capacities with other domestic generation sources, primarily – renewables. To ensure energy system stability and balancing, grid and storage upgrades, including ancillary services, are needed as the overall supply from intermittent renewable energy sources replace baseload supply from coal, and minimise the need for gas in the transition period.

2.1 Energy market structure in North Macedonia

31. The energy market structure in North Macedonia encompasses energy producers, transmission and distribution operators, market operator, traders, suppliers, and final consumers (Figure 11). Following the country's independence in 1991, the country's electricity system was owned and operated by a single state-owned company, Elektrostopanstvo na Makedonija. In 2005, it was unbundled into four companies: (1) MEPSO AD, the state-owned transmission operator, (2) MEMO DOOEL, state-owned market operator, 100% subsidiary of MEPSO AD, and off-taker of renewable energy produced by preferential producers under the Feed-in Tariff scheme; (3) ESM AD, the state-owned generation company, owning all significant generation assets (predominantly coal and hydro), and (4) EVN Makedonija AD, owner of EVN Distribucija (DSO) and EVN Home (Universal supplier and supplier in last resort). In 2006, the latter was privatized and sold to EVN AG, the Austrian utility, with 10% retained by the Macedonian government, and in 2008, it acquired its current name -EVN Macedonia AD Skopje.[70] The sector, together with gas and district heating, is regulated by the Energy Regulatory Commission (the ERC), an independent regulator established in 2003.

32. Elektrani na Severna Makedonija AD - (JSC - ESM) is the most significant domestic electricity producer, followed by CCPP TE-TO, EVN Elektrani, and other smaller electricity producers. A (ESM) generates and supplies electricity primarily from coalfired and hydro plants; it also operates coal mines. ESM accounts for 90% of the entire domestic production, owning around 80% of the lignite-

70 EVN https://www.evn.mk/AboutUs/History.aspx?lang=en-gb

fired capacity and having 4,600 employees in 2023.[71] The Company has an electricity generation license valid until 1 November 2040. It also has a heat generation, distribution, and supply license for its Energetika branch. ESM has also established four separate companies (legal entities). Three of the companies are for tourism, hospitality, sport and recreation: ELEM TURS DOOEL Skopje, Ski Centar Popova Shapka DOOEL Tetovo and ESM Molika DOOEL Bitola. Additionally, ESM has a separate company for production of equipment and parts called Fabrika za Oprema I Delovi - FOD DOOEL Novaci.

33. The feed in tariff (FiT) and the premium tariff (FiP) are available mechanisms to support electricity production from renewable energy sources in North Macedonia. Under FiT, preferential producers are guaranteed with the tariff for each kWh produced electricity under which the Electricity Market Operator is obliged to purchase the total of electricity produced by the preferential produces in a period of 15-20 years, depending on the type of power plant. The FiP represents an additional fee to the price that the preferential producer has achieved by selling the produced electricity in the electricity market. The producer under FiP is chosen via tender procedure with auction, carried out by the Ministry of Economy. Out of 624 domestic producers in 2022 in North Macedonia, 616 use renewable energy sources, whereby 172 use FiT, 21 use FiP and the remaining do not use support measures to produce electricity. This electricity is then allocated proportionally to the active suppliers and sold to final consumers through them. **Electricity traders** are the key entities through which the sale of electricity is carried out on the wholesale market. **Electricity suppliers** perform the same purchasing activities as traders, but apart from them, they have the additional right to supply households and small customers. Their sales activities are directed primarily toward the retail electricity markets.

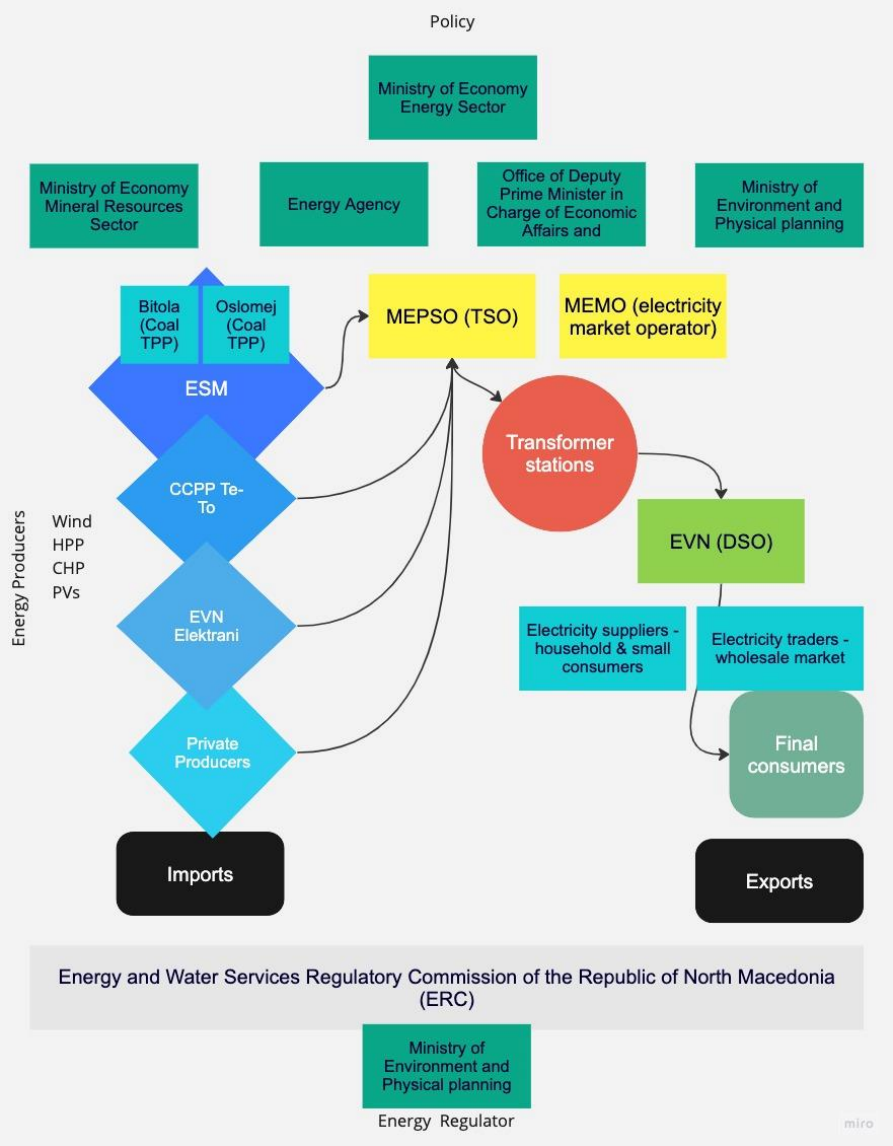
34. MEMO National Electricity Market Operator is in charge of the organization, efficient functioning, and development of the markets with bilateral agreements and balanced energy, as well as performs the activities related to the organized electricity market in the country.[72] In October 2019, MEMO received a license to organize and manage the electricity market by the Regulatory Commission for Energy and Water Services. It thus began to function independently as an Operator of the electricity market in the Republic of North Macedonia territory, working on necessary technical conditions to establish an organized electricity market in the Republic of North Macedonia, and the day ahead market was launched in May 2023. The regulated market has one 'universal supplier,' EVN, who can, in principle, procure its electricity from any source. Still, most electricity is procured through the state-owned generator, ESM, at a price below the market price. Before the pandemic and the current energy crisis, the 'universal supplier' model was due to be phased out. ESM's obligation to provide a share of its output at subsidized prices to EVN steadily decreased. However, this has been suspended, and ESM is obligated to supply 100% of its production to EVN to satisfy the needs of the regulated market.[73]

71 ESM Data presented at Just Transition Forum Skopje – October 4, 2023

72 MEMO https://www.memo.mk/?page_id=252501&lang=en

73 IMF 2022

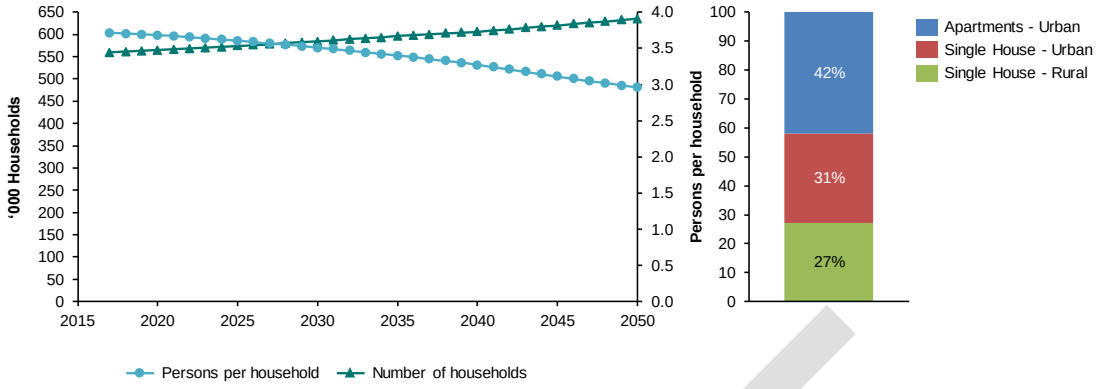
Figure 10 Energy Ecosystem North Macedonia



2.2 Energy consumption and energy efficiency

35. In 2022, electricity consumption in North Macedonia amounted to 7,105 GWh, and was characterised by high demand peaks in winter. It was broken down into 53% residential consumption, 24% other MV and LV, 9% HV, and 14% network losses. Transmission losses were 1.6% and distribution losses were 12% of total consumption. As a developing economy with projections for GDP growth, North Macedonia is expected to increase its energy consumption in the residential and industrial sectors. On the one hand, the population is expected to decline by 0.3% in 2050 compared to 2017. The number of persons in a household is projected to decline from 3.7 in 2017 to around 3 in 2050, and the consumption per household is expected to increase.

Figure 11 Number of persons per household (State Statistical Office)



Thus, according to projections in the Long-term climate strategy from 2021, more households are expected to require heating, which will increase the energy demand.[74] Energy consumption is also expected to rise in the industry sector, given that the value added is projected to grow (Figure 12).

Figure 12 Energy consumption trends (State Statistical Office)

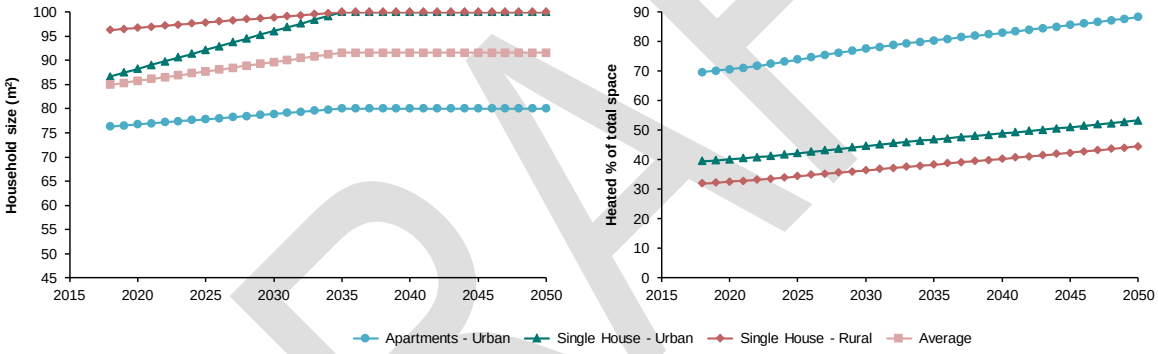
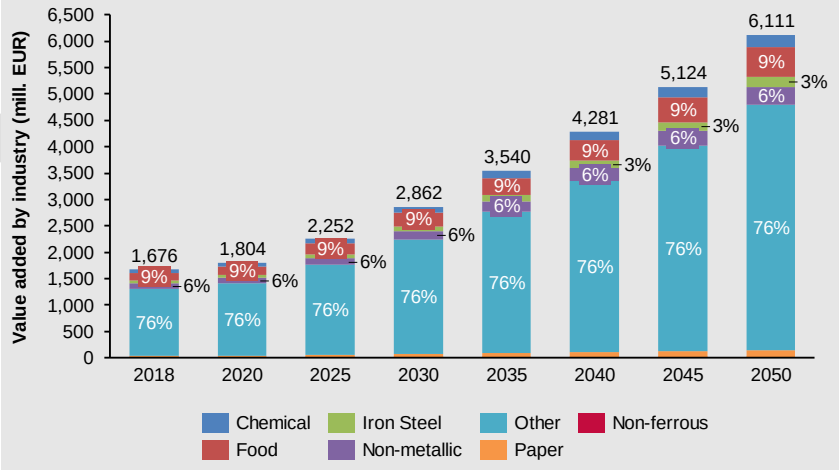


Figure 13 Value added by industry type (Long-term climate strategy 2021)



36. North Macedonia commits to the "Energy Efficiency First" principle (generate the necessary amount of energy, minimize investment in outdated technologies, and manage energy demand economically) in its NDC, Energy Strategy, National Energy Efficiency Action Plant (the fourth

74 Long-term Climate Strategy and Action Plan – North Macedonia, 2021

edition) and National Energy and Climate Plan (NECP). In the NECP, the main principles of Energy Efficiency First were introduced via interaction between 63 specific policies and measures. Regarding energy efficiency, there are 25 policies and measures including retrofitting existing buildings (residential, central governmental, municipal, and commercial), construction of new buildings and passive houses, renewal of public car fleets, green procurement, eco-labelling of appliances, replacement of incandescent street-lighting with LED, increased use of central heating, introducing EE obligation schemes as well as EE certificates for buildings. The energy efficiency measures should achieve savings of final energy consumption 20.8% and 34.5% savings of primary energy consumption and increased funding for research and innovation, promotion of clean technologies and clean heating opportunities.

37. There are still however gaps slowing down the achievement of EE ambitions, including legal, technical, and financial. The legal gaps are related to not fully transposing EU *acquis* related to energy efficiency and climate changes into Macedonian legislation.[75] Technical gaps are related to the availability of district heating to all newly constructed buildings in the municipalities where the district heating companies exist, mandatory EE passport in order to achieve the design heating parameters, construction of district heating companies and distribution network in the municipalities where the district heating companies does not exist, to remove all procedural barriers for installation of solar roof PV plants (for public, commercial and residential buildings), mandatory inspection of roof condition as well as electrical installation before installation of PV plants.

38. To address financial gaps related to energy efficiency, on October 3, 2023, the Parliament of the Republic of North Macedonia approved changes to the Law on the Development Bank of North Macedonia, enabling the creation of an Energy Efficiency Fund in 2024 (EE fund). The EE Fund will have a total amount of 15 million EUR and will operate within the North Macedonia Development Bank, aiming to finance energy efficiency investments. The EE Fund will get an initial capital of EUR 5 million from the World Bank, further supported by an additional EUR 10 million from the green bond auction. The fund is in alignment with the country's decarbonization goals outlined in the Energy Development Strategy until 2040. Loans, guarantees, and grants initially will be available to legal entities and from 2025 be extended to individuals, contributing to energy savings and environmental preservation. The establishment of the fund also complies with EU Energy Efficiency Directives.

2.3 Energy generation

39. In the Republic of North Macedonia, electricity generation is driven by the coal-fired the thermal power plants (TPPs) and hydro plants owned by ESM. In the total installed capacity in 2022 (2.26 GW), thermal power plants have the largest share at 45%, followed by hydropower plants at 32%, cogeneration plants with electricity and heat at 13 %, and the rest at 10%. In 2022, the energy generation mix of North Macedonia was dominated by coal-fired power plants (47%) and hydro (25%).

75 North Macedonia legislation regarding environment and air quality is almost complete. 93% of the Directive 2008/50/EC and 85% of the Directive 2004/107/EC with accompanying rulebooks are transposed in the national legislation. 62% of the Industrial Emissions Directive related to industrial pollution and risk management is transposed. The National Emission Reduction Plan, which was adopted in 2017, has been implemented since January 2018. The reduction of emissions is yet to be carried out in accordance with the timeframes indicated in the emissions reduction plan. Directive 2004/42/EC [43] for VOCs in paints and varnishes and Directive 2009/126/EC [46] on VOCs in petrol stations were fully transposed. 45% of the legislation related to chemicals has been transposed but not yet implemented. The legislation related to the Sulphur Content Liquid Fuels Directive alignment is completed. However, the alignment with the EU acquis in the field of climate change is still at an early stage. Directive 2001/81/EC was fully transposed into the national legislation and national emission ceilings for NOx, NMVOC, SOx and NH3 have been defined. The transposition of the new NEC Directive in the national legislation was planned for 2019 and some obligations under the new NECD are already performed.

(Table 8). Electricity production by coal power plants increased by 25% (534 GWh) compared to 2021 (historically low year for lignite generation), due to the increased production in TEC Bitola and in TEC Oslomej due to the energy crisis. The crisis also led to temporary use of fuel-oil fired Negotino plant, which was previously put in cold reserve. At the same time, in 2022, the installed capacity of renewable sources has increased by 144,4 MW, the highest increase ever.[76]

40. North Macedonia is a net importer of electricity. In 2022, 21% of the gross electricity consumption was supplied by import, while 79% - by domestic production, albeit heavily reliant on gas, oil, and coal imports from abroad for generation (Table 7). High reliance on fossil fuel imports results in exposure to volatile energy markets and raising domestic concerns about energy security. [77] In 2022, North Macedonia exported 624 GWh of electricity, an increase by 34,95% compared to 2021.[78]

Table 7 Balance of electricity demand and supply in the period from 2020 to 2022 (in GWh) (ERC Annual Report for 2022, p.29)

GWh	2020	2021	2022	2022/21 (%)	2022/20 (%)
Injected into the power system	**8,479**	**9,532**	**9,314**	**-2.29%**	**9.84%**
Production	**5,128**	**5,285**	**5,634**	**6.60%**	**9.89%**
The largest producer	3,643	3,170	3,647	15.05%	0.12%
Other producers	1,091	1,705	1,578	-7.45%	44.58%
Producers with FiT	393	407	394	-3.19%	0.15%
Producers with premium chosen tariff	0.056	3	15	400.00%	
Total import	3,352	2,940	2,209	-24.86%	-34.10%
Gross consumption	**7,459**	**7,906**	**7,105**	**-10.13%**	**-4.74%**
Net consumption	**6,476**	**6,865**	**6,133**	-10.66%	-5.29%
Direct consumers of transmission	957	924	643	-30.41%	-32.78%
Regulated supplier	3,562	3,688	3,754	1.79%	5.38%
Other distribution consumers	1,957	2,252	1,736	-22.91%	-11.27%
Losses	983	1,041	972	-6.63%	-1.12%
Transmission	124	125	114	-8.80%	-7.98%
Distribution	859	916	858	-6.33%	-0.13%
Export	1,011	359	523	45.68%	-48.27%
Net import	**2,341**	**2,621**	**1,471**	**-43.88%**	**-37.16%**
Import dependance %	31.38%	33.15%	20.70%		
Shares on free market %	52.24%	53.34%	47.16%		

76 ERC Annual Report 2022 p.30 https://www.erc.org.mk/odluki/2023.04.26_RKE%20GI%202022-FINAL%20ENG%20VERSION.pdf

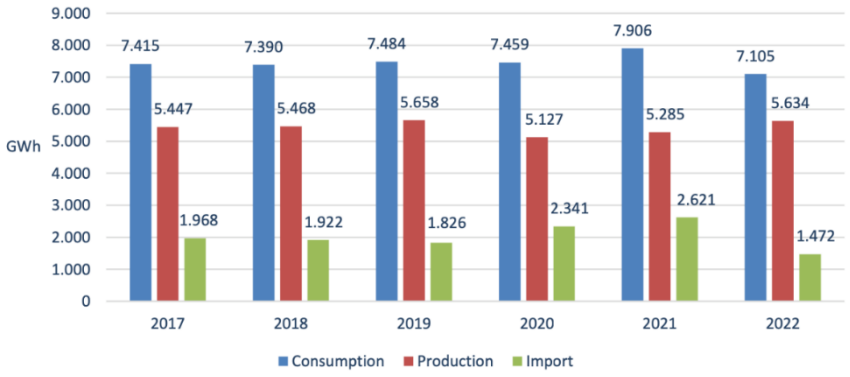
77 ERC Annual Report 2022 erc.org.mk/odluki/2023.04.26_RKE GI 2022-FINAL.pdf p.36

78 same, p. 34

Table 8 Installed capacity and electricity production (ERC Annual Report for 2022)

Producer	Number of power plants	Installed capacity (MW)	Share (%)	Production (GWh)	Share (%)
JSC ESM Skopje	**15**	**1,478.61**	**65.25%**	**3,754.99**	**66.64%**
TEC	4	824.00	36.36%	2,621.64	46.53%
HPP	8	557.40	24.60%	985.18	17.48%
WPP	1	36.80	1.62%	107.66	1.91%
TE-TO	2	60.41	2.67%	40.51	0.72%
JSC TEC Negotino	**1**	**210.00**	**9.27%**	**412.62**	**7.32%**
TEC	1	210.00	9.27%	412.62	7.32%
TE-TO JSC Skopje	**1**	**227.00**	**10.02%**	**926.81**	**16.45%**
TE-TO	1	227.00	10.02%	926.81	16.45%
EVN Power Plants	**15**	**62.56**	**2.76%**	**147.61**	**2.62%**
HPP	11	58.56	2.58%	142.81	2.53%
PVPP	4	4.00	0.18%	4.80	0.09%
Others	**591**	**288.04**	**12.71%**	**392.77**	**6.97%**
Small HPP	113	103.04	4.55%	269.35	4.78%
PVPP	472	139.4	6.15%	72.04	1.28%
Biogas	4	9.00	0.40%	51.38	0.91%
WPP	1	36.00	1.59%		
Biomass	1	0.60	0.03%		
Total	**623**	**2,266.21**	**100.00%**	**5,634.8**	**100.00%**

Figure 14 Electricity production, consumption, and import for 2022 (ERC Annual Report for 2022, p.34)



41. The Macedonian electricity system is interconnected with the electricity systems of Serbia, Greece, Kosovo, and Bulgaria. Construction of the interconnection with Albania started in Q3 2021. As a result of these interconnections, the regional grid is expected to be more readily able to accommodate increasing RES penetration. Finally, MEPSO is a full member of the European Network of Transmission System Operators for Electricity (ENTSO-E), which ensures interconnection compatibility with European electric power systems.[79]

63ENTSO-E https://annualreport2016.entsoe.eu/members/

2.4 Increasing role of renewable energy sources

42. While North Macedonia is predominantly a coal-dependent country, the share of renewable energy sources is rising. In 2022, the total installed capacity of renewable energy sources amounted to 944,5 MW – a 16% increase from 2021.[80] Most new power plants installed in 2022 (144 MW in total) are solar power plants with a total installed capacity of 99,2 MW, followed by wind power plants with an installed capacity of 36 MW, small hydro power plants with a total installed capacity of 7,2 MW and one biogas power plant with an installed capacity of 2 MW. In total, 267 new power plants were built using renewable energy sources (Table 9). Although the production of electricity from PV and wind sources is increasing, in 2022, overall generation amounted to 29% of the national total, a 2.5% decrease compared to 2021, mainly due to the reduced production by hydropower plants and increased electricity production from thermal power plants.[81]

Table 9 RE installed capacity[82]

	Built 2022		Planned[83]	
Type of RES power plants	Number of power plants	Installed capacity (MW)	Number of power plants	Installed capacity (MW)
Solar	254	99.2		
Small Hydro Power Plants	11	7.2	25	30
Wind Power Plant	1	36	5	123.2
Biogas	1	2	10	10.06
Biomass			3	3
Total installed in 2022	**267**	**144.4**	**43**	**166.26**

43. North Macedonia possesses an estimated capacity of approximately 11 GW installed capacity for PV plants and 354 MW installed capacity of wind power.[84] This inference is logical considering the historical focus on exploiting hydro potential, where the most technically and economically viable sites for hydro power generation have already been tapped. The remaining **hydro power potential** is primarily situated in the Vardar River valley, but its utilization is associated with substantial costs for the relocation of railway and highway infrastructure. There is also a lesser extent of hydro potential on the Crni Drim river**.**

44. Geographically, Southeast part of Macedonia, spanning from the Demir Kapija goes down to the borders with Greece, stands out as the most promising area for wind potential. A significant number of connection requests to the transmission grid are concentrated in this region. Additionally, the North-eastern part of the country is promising for the implementation of wind power plants. Ongoing measurements in Pelagonia and the Southwest region indicate potential for wind power plant development near Krusevo town and the Plakenska mountain (between Ohrid and Demir Hisar Municipality). In terms of **solar power,** the largest number of connection requests, as reported by

80 ПОБРЗО ДО ОБНОВЛИВА ИДНИНА: КОРИСТЕЊЕ НА ДЕГРАДИРАНИ И НЕУПОТРЕБЛИВИ ПОВРШИНИ КАКО ЛОКАЦИИ ЗА СОЛАРНИ И ВЕТЕРНИ ЦЕНТРАЛИ ВО СЕВЕРНА МАКЕДОНИЈА, Еко Свест, Септември 2023 p. 6 https://ekosvest.com.mk/wp-content/uploads/2023/10/Pobrzo_do_obnovliva_idnina_2023_MK.pdf

81 ERC Annual Report 2022 https://www.erc.org.mk/odluki/2023.04.26_RKE%20GI%202022-FINAL%20ENG%20VERSION.pdf

82 same. p.40

83 ERC Annual Report 2022 p.43 https://www.erc.org.mk/odluki/2023.04.26_RKE%20GI%202022-FINAL%20ENG%20VERSION.pdf

84 ПОБРЗО ДО ОБНОВЛИВА ИДНИНА: КОРИСТЕЊЕ НА ДЕГРАДИРАНИ И НЕУПОТРЕБЛИВИ ПОВРШИНИ КАКО ЛОКАЦИИ ЗА СОЛАРНИ И ВЕТЕРНИ ЦЕНТРАЛИ ВО СЕВЕРНА МАКЕДОНИЈА, Еко Свест, Септември 2023

MEPSO, are received for the eastern part, specifically in the vicinity of Stip (central east part of the country), and for the Pelagonia region near SS Bitola 2. The largest photovoltaic (PV) plant in the Western Balkan region began operating in September 2023, boasting a DC side installed capacity of 55 MW. This privately-owned PV capacity actively sells electricity on the market and assumes balancing responsibilities.[85]

45. The Republic of North Macedonia has 20 coal mining locations with geological reserves estimated at 2.5 billion tons. From the remaining geological coal reserves, it is estimated that 38% could be exploited with surface excavation and the rest with a cavity–underground technology. Cavity coal excavations are not currently used in North Macedonia. The coal in the Republic of North Macedonia is currently exploited in two types of mines. The first type of mines sees lignite extraction (Suvodol, Brod-Gneotino and Oslomej) for the electricity production in the TPPs, with the second type of mines supplying industrial (coking) coal (Table 10).[86] **Coal mining for electricity occurs in Pelagonia and the Southwest region**. The Kichevo and Pelagonia coal basins have determined coal deposits in Suvodol, Brod-Gneotino, Zivojno, Oslomej, Popovjani, and Stragomiste, of which Oslomej, Brod-Gneotino and Suvodol are in use and being exploited. Suvodol and Brod Gneotino are in operation while the Oslomej mine has been decommissioned from operations with only minor reclamation activities taking place. Thus, Oslomej TPP is highly reliant on imports, primarily from Kosovo.[87]

Table 10 Size of active coal mines and ash disposal sites (Energy Strategy 2019 and LURA assessment)

Active Mines / Objects	Region	Estimated Size (km^2)	Annual exploitation – million tones	Years of production left (as of 2014)	Coal reserves (as of 2014) million tones
1. Suvodol lignite mine	Pelagonia – 17km NE from Bitola	27	3	16	48
2. Brod Gneotino lignite mine	Pelagonia	6.5	2	11.5	23
3. Oslomej lignite mine	Southwest	6	0.04	2	0.35
TOTALS		**39.5**	**5.04**		71.35

2.5 Power Sector Transition

2.5.1 Investment in PVPP on former mines

46. Coal-reliant areas provide opportunities for conversion into renewable energy hubs. There are already several examples of coal mine land remediation and repurposing to the PV use. For example, the country's first 10MW Oslomej PVPP facility was built by ESM on the former Oslomej lignite mine site, with EBRD's loan and WBIF grant, and a human capital development component. Following this successful example, the EBRD is financing, the second PVPP Oslomej 2 (10 MW) and 20 MW in Bitola, will be completed by the end of 2024, which sends a positive signal to interested investors. Additionally, private-public partnerships (PPP) exist between the state-owned ESM and two private

85 Biggest solar power plant in Western Balkans completed in Novaci in North Macedonia, September 2023, https://balkangreenenergynews.com/biggest-solar-power-plant-in-western-balkans-completed-in-novaci-in-north-macedonia/

companies (Turkish and Bulgarian) - constructing two additional PV plants with a capacity of 50MW each (100 MW in total). The private partner will cover the investment and operating costs and, within 35 years, will transfer the ownership to AD ESM. In 35 years, the private partner of AD ESM will pay at least 10% of the electricity produced at an hourly HUPX price.[88]

47. Former coal mining lands can provide additional space for renewables, and other deployment. For example, many additional large private RES projects are initiated to move away from coal, but other solutions such as storage must be provided to address the intermittency of renewables. In Bitola, according to the Capital investment plan, ESM plans to construct an additional 180MW PV, close to the TPP, on the Suvodol mine, with the support of the KfW and the EBRD (Table 11). The construction of this PVPP will significantly increase the share of renewable energy sources in the energy system of North Macedonia. Some estimates show that up to 600MW of solar PV could be deployed on mining lands, but alternative depleted mining land use (e.g., small pumped hydro storage, but also agriculture and light industry) should also be explored.[89]

Table 11 PVPPs installed on former coal mines (Aide Memoire 2023)

PVPP	Installed capacity (MW)	Investor	Status
Oslomej 1	10	ESM – EBRD	Operational
Oslomej 2	10	ESM – EBRD	Preconstruction
Oslomej 3	100	ESM – PPP	Partly operational
Bitola 1	20	ESM-EBRD	Preconstruction
Bitola 2	60	ESM-EBRD-KfW	Planned
Bitola 3	100	ESM-EBRD-KfW	Planned
Total	**300**		

2.5.2 Grid enhancement as a precondition for RES transition

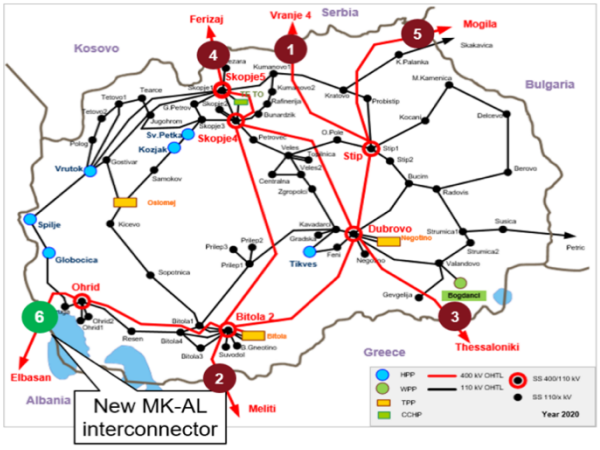
48. As the system gradually transitions to intermittent renewables, optimisation of balancing services, as well as storage and grid investments become a priority. North Macedonia has a well-developed transmission network with five interconnection points. The overall transmission network consists of 577 km of 440 kV and 1,601 km of 110 kV lines. As a transmission system operator, MEPSO manages the 2,122 km of lines. The 400 kV lines form a ring and connect the largest electricity producer, TPP Bitola, with the direct consumers; they also connect North Macedonia with the neighbouring countries. North Macedonia has interconnections with Serbia, Kosovo, Bulgaria, and Greece. The construction of a new 400kV electricity transmission interconnector line with Albania is underway. The 110 kV is well-developed and connects large hydropower plants, TPP Negotino, and other producers with all urban and industrial areas (Figure 16).[90] Based on a recent study conducted by MEPSO for country- wide system reserves, the existing balancing system reserves can accommodate, under certain conditions, only up to 1.3 GW of intermittent renewables. Any further investments in RE, especially in the Pelagonia and Southwest regions, will require substantial investments in the grid.

88 ESM Capital Investment Plan, May 2022 - https://www.esm.com.mk/?p=13164&lang=en

89 Aide Memoire ACT IP Scoping Mission 22-25 May 2023 Skopje, North Macedonia

90 Energy Development Strategy 2020-2040 p.20 https://economy.gov.mk/Upload/Documents/Adopted%20Energy%20Development%20Strategy_EN.pdf

Figure 15 MEPSO transmission system[91]



Interconnection lines				Type of conductors	Length (km)	Year
1	Serbia	400 kV	TS Stip 1 - TS Vranje 4	ACSR 2x490/65 mm²	70.2	2015
2	Greece	400 kV	TS Bitola 2 - TS Meliti	ACSR 2x490/65 mm²	17.3	2007
3	Greece	400 kV	TS Dubrovo - TS Thessaloniki	ACSR 2x490/65 mm²	54.7	1978
4	Kosovo	400 kV	TS Skopje 5 - TS Ferizaj	ACSR 2x490/65 v	22.7	1978
5	Bulgaria	400 kV	TS Stip 1 - TS Mogila	ACSR 2x490/65 mm²	71.3	2009
		110 kV	TS K. Palanka - TS Skakavitsa	ACSR 240/40 mm²	12.8	1994
		110 kV	TS Susitsa - TS Petric	ACSR 240/40 mm²	11.1	1979

MEPSO 5 year network development plan		Year	Current status	CAPEX mil. EUR
6 Interconnection line with Albania (PECI list)	400 kV-TS Bitola 400/110 kV Ohrid SS Line in / line out interconnection on new 400 kV MK-AL	2018-2020	EIA /legal relations/ project documentation	36.92
New transmission lines	Line in / line out connection of one of the substations in Polog region to the existing 110 kV OHL Vrutok - Skopje	2018-2022	n/a	5.1
Revitalization / reconstruction of OHL	8 x 110 kV	2018-2022	n/a	24.44
Revitalization/reconstruction of transformer stations		2018-2020	n/a	14.12
Modernization of electricity transmission system		2018-2020	n/a	8.1
Total CAPEX				88.68

49. The current demand on RES investments is integrated in the MEPSO grid development plan. RES applications for connection to the transmission system reached 8,718 MW capacity, of which 6,907 MW of PV plants and up to 1,811 MW of wind power plants. In the Bitola region alone, MEPSO currently has 977.5MW of connection requests, one of which is 260 MW and the rest - smaller than 100 MW. An example is the new transmission project in the southeast part of the country (EUR 33 million investment in new 400kV substation, reconstruction of existing 110kV transmission lines and new underground 110 kV transmission lines), which will allow connection of additional 1.2 GW RES (predominantly wind farms). Construction is expected to start end of 2024 and be finished in 2027.[92] However, further site-specific (including brownfield) investments, described in component 1, are required to support RE integration in both regions.

50. To support integration of RE, it is important to increase availability of low carbon storage solutions in the system. To date, only one application exists, and the storage regulation is still under development.[93]

51. The increasing RES trend is affecting the DSO (EVN) as well. EVN already has 250MW from small PV connected and expects another 500MW in the next two years. The entire territory of the country is affected by this trend, particularly Shtip, Probistip, and Strumica. However, over the last year, over 500 new connection requests have been rejected due to the inability to integrate them on the grid because of low capacity in the transmission substations. There is also increased interest from prosumers – households who can install up to 6 kW on houses and SMEs up to 40 kW. Some PV requests try to game the system by filing multiple small connection requests in the same area on distribution rather than the transmission system, as the process is easier. EVN also sees potential in batteries and other storage technologies to address the issue, but this is still underdeveloped.[94]

91 Energy Development Strategy 2020-2040 p.20 https://economy.gov.mk/Upload/Documents/Adopted%20Energy%20Development%20Strategy_EN.pdf

92 Aide Memoire ACT IP Scoping Mission 22-25 May 2023 Skopje, North Macedonia

93 same

94 Aide Memoire ACT IP Scoping Mission 22-25 May, Skopje, North Macedonia

2.5.3 Gas infrastructure

52. Natural gas forms part of the country's energy transition strategy, as outlined in all strategic documents, including the adopted Energy Strategy, NDC , 2022 NECP: North Macedonia's mid- and long-term decarbonisation heavily builds on a rapid scale up of renewable energy sources but also relies on gas as a transition fuel to support early peaking of GHG emissions by enabling the phase out of coal use in the energy sector and industry. Gas is also seen as a critical element to allow for more flexibility in the system and therefore increase security and reliability of supply. To allow for reaching net-zero emissions, gas infrastructure would need to be able to transport decarbonised gases in the future.

53. North Macedonia is expanding the existing gas infrastructure to allow secure transition and reduce air pollution. Currently, natural gas is mainly used for district heating in Skopje, electricity production by the (Combined Heat and Power) CHP TE-TO and some industrial activities. Works to build the gas transmission pipelines between Negotino–Bitola and Skopje-Tetovo-Gostivar are progressing. Sections Gostivar - Kichevo and Sveti Nikole - Veles are being developed and prepared for financing. Preparation of project documents is underway (with funding by WBIF) for the interconnections with Kosovo and Serbia. Interconnection with Greece is at financing structuring stage after the two Transmission System Operators signed a cooperation agreement in 2021.

2.6 Energy transition towards EU alignment

54. An overview of the energy transition dynamics of the country is also present in the EU Accession progress reports for North Macedonia, the latest being published in November 2023.[95] The national framework legislation on the internal energy market aligns with the EU's third energy package for gas and electricity markets, which are open for competition. The adoption of corresponding implementing legislation is well advanced. The electricity transmission and distribution network operators are unbundled per the EU acquis. The unbundling process of the Natural Gas Transmission System Operator has finished. Since January 2023, a new company Transmission System Operator for Natural Gas - NOMAGAS JSC Skopje started operating, as a result of the merging process of the previous TSO GA-MA and NER JSC. The new company is fully state-owned and is in the process of Certification. Full transposition of the Regulation on Wholesale Energy Market Integrity and Transparency (REMIT) regulation, as adopted by the Energy community, has been done in 2023 with the adoption of the amendments to the Energy Law and of two Rulebooks issued by the Energy regulatory commission. According to the progress report, The Energy Regulatory Commission (ERC) is functional and continues to demonstrate regulatory independence. In the area of hydrocarbons, the law on mineral resources **is** aligned with the hydrocarbon licensing directive. The Renewable Energy Directive (REDI) is still to be transposed. Investments in hydropower are expected to be compliant with the relevant environmental acquis. Currently, the process for drafting of the new Energy law is underway, which will transpose the Clean energy Package, as adopted and amended by the Energy community. The new Energy Law will be adopted in 2024, making the NECP a legal obligation and replacing the Renewable Energy Sources (RES) action plan.

95 EU Progress Report North Macedonia, November 2023 https://neighbourhood-enlargement.ec.europa.eu/north-macedonia-report-2023_en

55. The Government sees solar PV (including on former mines) and wind plants as key to the energy transition for the country. However, coal-fired power plants provide 74% baseload capacity in North Macedonia and state-owned transmission system operator (MEPSO) has raised concerns about the (a) energy security of supply due to the intermittency of renewables, and (b) ability of the grid to operate while integrating renewables without further upgrades. For example, in the Bitola region (which produces 2,457 GWh per year and is a vital production node) alone, MEPSO received over 1 GW of RE connection requests by 2023 (compared to 7 GW for the entire country). Additionally, under the Law for Strategic Investments (2020),[96] two investments are approved by Government in the affected regions: a PV plan in Baldovenci with 138 MW installed capacity and a WPP plant in Prilep with 47.2 MW of installed capacity.[97] At the same time, the whole transmission system can currently integrate only 1.3 GW of renewables and any further RE capacity would require substantial investments in the grid.[98]

56. On top of the infrastructural challenges for the energy transition, the socioeconomic aspects of the accelerated coal transition must be addressed carefully, particularly in the Southwest and Pelagonia coal-reliant regions. The populations of these two regions will be unevenly affected by the coal transition, highly reliant on local coal value chains, as well as broader communities, unless just transition measures are actively taken. Socioeconomic opportunities need to be provided to people employed in coal power plants and mines (now – c. 3,600), plus a similar number in **coal value** chains; furthermore, upstream land repurposing for three coal mines (Oslomej, Suvodol and Bjord-Gneotino) and decommissioning/repurposing of power plants will require environmental remediation. It is essential to promote access to alternative livelihoods for those affected by the transition, while tackling pre-existing inequalities and preventing the widening of gaps. More specifically, its critical to equip directly and indirectly affected workers with the career guidance and market-relevant skills required for either internal redeployments or external job transfers across the regional labour market, as well to support the reskilling of other target groups (such as women and youth from regions reliant on fossil fuels), with a focus on green and digital skills and energy efficiency competences in demand by employers. At the policy level, while passive labour-policy measures such as early retirement and compensation schemes can be helpful in the short term, they tend not to address long-term issues. Active labour market policies are required, such as measures to strengthen national education policies and employment services or support for the development of SMEs, focusing on job quality –going beyond the narrow counting of job numbers. Changes in local economies could also have impacts on the ability of local government to maintain infrastructure and services as well as the overall provision of services by public and private providers. As families face stressful financial conditions, additional support could be needed to manage social risks which may emerge gender-based violence, depression, and substance abuse, etc.

96 Law for Strategic investment 2022 under which investments gain status of being strategic, therefore are expediated. https://www.mzv.cz/public/9a/ed/d3/4542404_2796127_Zakon_za_strateshki_investitsii_vo_Republika_Severna_Makedonija_20_01_2020.pdf

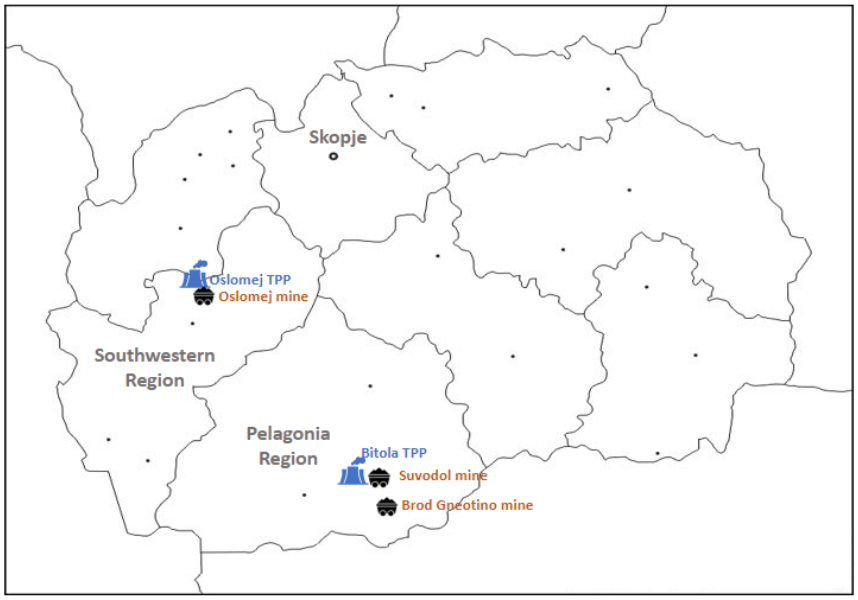
97 Government decisions from 25.11.2022: https://vlada.mk/sites/default/files/img/odluka_sip_balkan_renevable.pdf and https://vlada.mk/sites/default/files/img/odluka_sip_enimak.pdf

98 Aide Memoire – Scoping Missions 15-19 May 2023 https://www.cif.org/documents/aide-memoire-north-macedonia

2.7 Southwest and Pelagonia Region Socioeconomic Context and Transition Activities

57. North Macedonia's small size means the impact of coal phase-out will be felt throughout the country—both in terms of indirect and induced effects on employment and value-added nationally. About 3,600 direct and about the same number of indirect jobs could be affected by the coal phase-out.[99,] As majority of occupations from coal value chain will be irrelevant, substituted or transformed. Despite its diminishing role in the energy mix, coal-related employment is significant for both regions, therefore, plays an important economic role.

Figure 16 Pelagonia and Southwest region with TPP Bitola and Oslomej and mining locations



58. Pelagonia and the Southwest regions are expected to experience most of the consequences of the coal phase-out. Coal mining and coal-powered energy production in the Pelagonia regions have had a significant impact on their economic and social development: a) directly through employment in ESM, the leading energy producer in the country and owner of the power plants and the mines, b) indirectly - through other parts of the coal value chains, and c) induced – through workers' consumption. The biggest impact from the transition will be in the rural municipality of Novaci where the affected people are 25% of the total population of the municipality, even though the biggest absolute number of directly affected people is in Bitola and Kichevo with 7% and 6% of the population respectively. Summary of key demographic data are presented in Table 12.

59. Additionally, the energy transition process is also affecting the ESM suppliers' companies and their workforce. While many are not directly impacted by the 'coal phase-out', the contractors which are most reliant on coal-related activities might face significant challenges. It is crucial for these

99 Just Transition Roadmap 2023

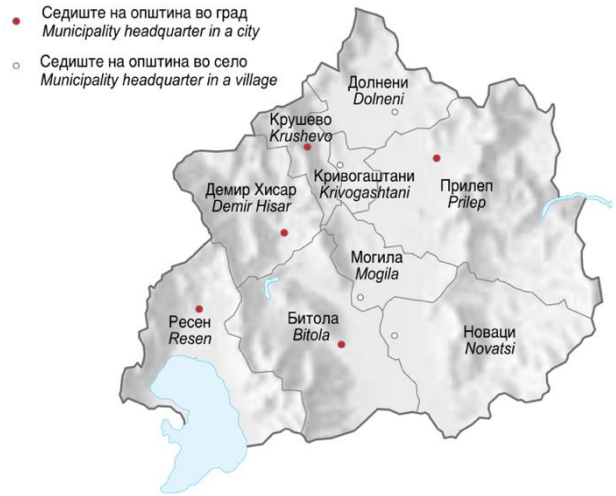
companies to diversify their client base, explore new climate-smart opportunities, and facilitate relevant upskilling of their workforce in green and digital occupations.

60.Unemployment in the Southwest region is significantly higher than the national average (15.7% nationally, 21.2% in the Southwest region in 2021). However, the average gross and net salaries are below the national average. The Pelagonia region has a higher GDP per capita, while the Southwest region has a lower GDP per capita than the national average.

Table 12 Demography and economic parameters - State Statistical Office 2022[100]

Indicator	Period	Southwest	Pelagonia	National
Population		177,398	210,431	1,836,713
Employment rate (%)	2021	41.3	54.6	47.3
Unemployment rate (%)	2021	21.2	12.2	15.7
Average gross wage per employee (MKD)	2021	38,246	39,860	42,887
Net average salary per employee (MKD)	2021	25,615	26,663	28,718
Number of primary and lower secondary schools	2021/2022	124	172	972
Number of upper secondary schools	2021/2022	14	20	129
Number of students in primary and lower secondary education[101]	2021/2022	17,226	19,580	186,649
2021/2022 Number of students in upper secondary education	2021/2022	6,600	8,067	71,081
Number of graduated students from universities	2021	658	900	7257
Number of active business entities	2021	7,218	7,791	75,914
Number of enterprises established	2020	532	456	5,141
Number of enterprises closed	2019	615	543	5,407
GDP per capita	2020	242,440	321,340	316,488

2.7.1 Pelagonia economic profile



61. The Pelagonia Region is in the south of the Republic of North Macedonia. Territorially, it is the largest region, positioned for agricultural development. It also contains the largest coal deposits, making it the country's largest electricity producer.[102] Demographically, Pelagonia faces the country's most considerable population decline.[103] The population in Pelagonia is in the aging, with the largest share of the population being 59-64 old. This means that the working-age population is also decreasing. The fertility rate is low (1.3 in 2018), while net migration is negative but low and stable.

100 Regional Statistics 2022 Regionite vo RM 2022.WEB.pdf (stat.gov.mk)

101 SSO Education and Science 2023 https://www.stat.gov.mk/PrikaziSoopstenie_en.aspx?rbrtxt=17

102 State Statistical Office – Regions in the Republic of North Macedonia 2022 https://www.stat.gov.mk/PrikaziPosledna Publikacija_en.aspx?id=32

103 Analysis of Supply and Demand 2021 https://www.e4e.mk/wp-content/uploads/2022/01/analisys-of-supply-and-demand-proofreading-and-translation71026.pdf

62. Pelagonia has mostly mature companies (60%) and companies undergoing growth (33.3%). Manufacturing is rising in Pelagonia, while agriculture is declining as of 2021.[104] Projections indicate that manufacturing will grow the fastest in the next decade, followed by human health and social work activities, information, and communications, while agriculture, forestry, hunting, and fishery will further sharply decline. Similar decline trend is projected for mining and querying as well as wholesale and retail trade and construction.[105] As per the Economic Chamber analysis, there is a shortage of skills for 38% of the jobs needed in the region. In Pelagonia, as in other regions in the country, there are initiatives for connecting companies with vocational education providers (VET) in need of VET for the IT industry, mechanical engineering, tourism, and hospitality.[106] Based on calculating the location quotient as a measure of regionally competitive sectors, Pelagonia is competitive mainly in agriculture, mining, manufacturing, and electricity (details in Table 8).[107]

63. Regarding labour structure, the unemployment rate in the Pelagonia region is relatively low compared to other regions in North Macedonia, decreasing from 34% in 2008 to 12% in 2021.[108] From the registered unemployed persons actively looking for work in the municipality of Bitola in 2020, 53% are women and 47% are men. Most people have low levels of education. From the same report for 2022, in Bitola there were 4,070 unemployed persons (1,971 male and 2099 female). The demographic trend shows that the Pelagonia region has been experiencing a notable decline in its population, amounting to a substantial decrease of 11.6% during the period of 2002 to 2021. The Southwest region notices an even higher decrease in population with 19.9%. More than half (54%) of the unemployed persons are in the group of persons with no primary education, (43% are with primary education) and incomplete secondary education (11%). 27% of unemployed have completed secondary education and 19% have higher education. Skills-wise, Pelagonia has a shortage of employees with the following qualifications: assistant maintainer of smoke conduits, salesperson – sale services clerk, textile worker, automobile electrician, electrical technician, electrical mechanic, electrical mechanic for computer technology, florist, carpenter, baker, maintenance machinist, metalworker, welder, architectural technician, interior architecture designer technician, graphic arts technician, legal technician, trade and marketing technician, electrician-energy technician, electrician for computer technology and automatics mechanical technician, mechanical-energy technician, computer-aided management technician, clothing technician, textile technician, footwear technician, clothing computer operators, food technician, production process technician, chemical technology technician nutritionist technician, furniture and interior technician, wood processing technician.

64. The Pelagonia region is still lacking well-developed infrastructure. 18% of the region's road networks Pelagonia need improvement.[109] Transportation of goods by rail in the Pelagonia region in 2019 was higher by 3.7 times compared to 2015 (55,689 compared to 14,941 tonnes). The reconstruction of the railway line Bitola - Kremenica (border with Greece) provides an opportunity for

104 same.

105 same.p.62

106 same.p.80

107 Location quotient (LQ) is a way of discovering the industries or occupations that are truly unique and specialized in a regional economy (compared to the national average). It is estimated as follows: LQ_(i,r)=(A_(i,r)⁄A_r)/(A_(i, R)⁄A_R), where A the GVA, i the sector, r the region and R the country. If the LQ>1 for a sector, then this is an important sector for the region. Note that in the adjacent Western Macedonia the LQ for 'mining and energy' is ~6.5, while for all the other sectors is less than 1. Eventually, location quotients will be utilised in the input-output analysis of the next project deliverable.

108 same. p.41

109 Strategy for regional development of Republic of North Macedonia 2020-2030 (Official gazzete No.76/2021).

a better connection of the Pelagonia region. A complete reconstruction of the line from the North Macedonian side has finished, and the railway, once operational, will connect to a branch stop to the Zabeni industrial zone. Additionally, reopening the railway connection Veles - Bitola - Florina - Thessaloniki could positively impact the region's integration and development prospects.[110] Finally, Pelagonia is close to "St. Apostle Paul" Airport in Ohrid, providing additional opportunities for business travel, and tourism into the region.

2.7.2 Southwest region Economic Profile

65. The Southwest region comprises the Southwest part of the Republic of North Macedonia. According to the 2020 census, the region has 9.7% of the country's population. The configuration of the terrain, encompassing the river basins of Treska and Crn Drim and the Ohrid Lake basin, indicates the great hydro potential of the region, partly utilised by the artificial lakes Shpilje and Globochica with their hydroelectric plants. These geographical characteristics and the mild climate are favourable for fruit growing, wood processing, and tourism. Ohrid Lake, considered the oldest lake in Europe, is protected by UNESCO.[111] The population of the region has decreased by 1.23 % over the past decade (2009-2019), in contrast to the country's general increase (1.15 %). This is driven in part by the lowest fertility rate in the country (1.06 in 2018) and one of the lowest in Europe.[112]

66. Regional economy is driven largely by tourism. The largest sectors by gross value added (GVA) include wholesale and retail trade, repair of motor vehicles and motorcycles, transportation, and storage, and accommodation and food service activities. The sector participates with a significant 30.6% of the region's GDP (2019). The second most important sector in GVA (13.8% in 2019) is real estate activities. Mining, manufacturing, electricity, gas, and water supply, sewerage, waste management, and remediation activities participate with 17.5% of the gross value added of the Southwest region and a share of 7% of the sector at the national level. The Southwest region and Polog region in North Macedonia have a dominant share in the electricity production through renewables (35 % and 31.1 %, respectively) and, specifically, through hydropower plants.[113]

67. Unemployment rates have decreased but remain high (21.2 % in 2021) and persistent among the most vulnerable groups, such as lower-skilled and young people. There is also a high incidence of inactivity for women, as well as high unemployment and inactivity among people with medium and higher levels of educational attainment, indicating a structural deficit in the economy, a mismatch in the labour market skills supply and demand and a lack of entrepreneurial drive among the latter group.

110 same.

111 same

112 JTR Assessment 2023

113 same.

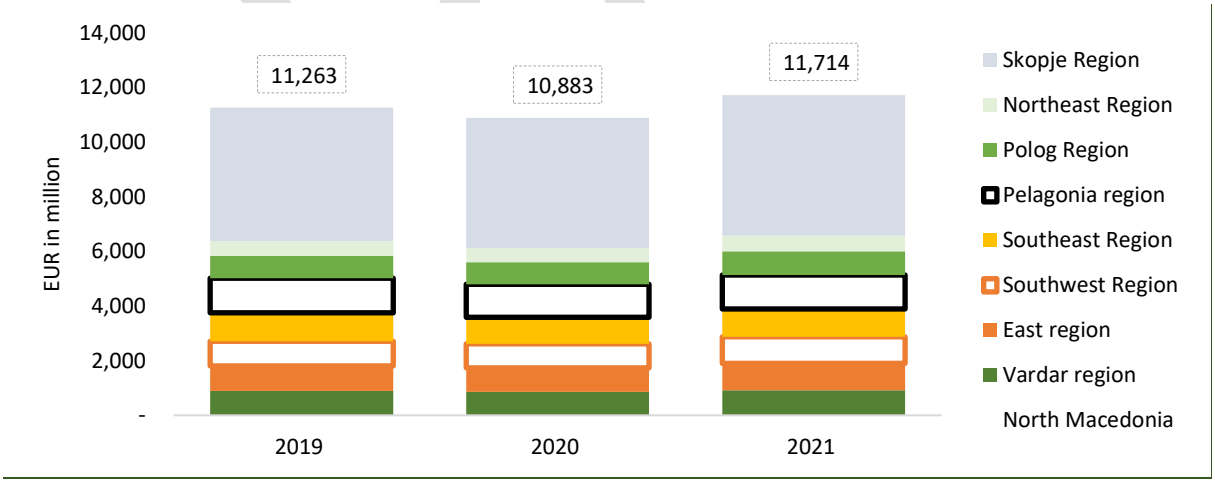
According to the data from the State Statistical Office as of 30 June 2023, in Kichevo there are 3,221 registered unemployed persons. 1,898 of unemployed are with primary school (or not finished basic education), 1,024 with secondary education, and 299 with higher education (including master and PhD). Specifically, in Kichevo there are 3,211 unemployed persons (1,561 male and 1,650 female).

68. The Southwest region is also facing challenges in terms of infrastructure. The road network of the Southwest region is more extended than that of Pelagonia (59.2 km/100 km2 compared to 41.9 km/100 km2). It is also in better condition as the region experienced the greatest improvement of its local road network in the past years. The construction of Corridor VIII, one of the pan-European multi-modal transport system that connects South of Italy and Adriatic Sea with the Black Sea Coast of Bulgaria, will be of great importance for the area as it passes through Ohrid and Kichevo, although there are continuous delays in its implementation. The "National Plan 2021-2027" foresees the highway construction between Struga and Kjafasan (border with Albania). The region has only 25.8 km of railway network, corresponding to 3.8 % of the country's total. Large cities such as Ohrid and Struga do not have railway stations and railway infrastructure nearby. Air transport is organised through the Airport "St. Apostle Paul" in Ohrid.

2.7.3 Challenges and opportunities for economic development of the Pelagonia and Southwest regions during energy transition

69. Comparatively speaking, both the Southwest and Pelagonia regions contribute significantly to the country's economic growth (Figure 18).

Figure 17 Contribution of Pelagonia and Southwest regions to the economic development of North Macedonia (PwC ESM study 2023)



70. The coal phase-out may disproportionally affect the labour market and business structure in the two regions. The employees from ESM directly contribute to the local economies (Table 13). On the one hand, there is the need of supporting workers who will need to change workplace due to the phase-out, through reskilling and redeployment, and on the other hand creating opportunities for those that are not active in the labour market, especially women and youth. The ESM's TPP transformation will also affect suppliers servicing REK Bitola and Oslomej. Furthermore, between 25-

30% of citizens in North Macedonia, reflected also in these two regions, live in energy poverty, that can further affect vulnerable communities, if measures are not undertaken during the coal phase-out.[114]

Table 13 ESM employment (As presented in Just Transition Roadmap 2023)

ESM data 2021	REK Bitola (Pelagonia)	REK Oslomej (Southwest)
Employees (including those in FOD - Factory for equipment and parts and FORT - Factory for maintenance, repair, and transport).	3,116	1,150
Mining	1,514	554
Electricity production	1,010	401
Non-permanent workers	290	100
FOD workers	302	95
Men	87%	92%
Direct value-added annually to the local economies	EUR 84,858,507	EUR 31,725,911
Residence of workers [115]	Bitola, Mogila, and Novaci	Municipality of Kichevo.

71. Regarding the social factors in the process of coal phase-out, there are no specific programs for the Southwest and Pelagonia, according to the Ministry of Labour and Social Policy.[116] On a national level, MLSP provides social transfers during the heating season, especially during the COVID-19 pandemic and energy crisis periods. Various projects have been implemented to support purchasing inverter air conditioners and energy efficiency. Still, the users of social help (most vulnerable consumers) live in dire, sub-standard conditions and do not see the potential for improvements. There are also no early retirement schemes/programs for coal value chain employees, only social pensions. The Employment Agency administers programs for unemployed people but not exclusively for the targeted regions. There is also an educational transfer (grant) for youth that work in the industry, equivalent to MKD 3,000 MKD (EUR 50) per month. However, there is a need to target specifically workers and vulnerable groups in coal-affected regions and facilitate their transition.[117]

Table 14 Location Quotient calculation for Pelagonia and Southwest region (2019) – regionally competitive sectors

Regionally competitive sectors by location quotient	Pelagonia	Southwest
Agriculture, forestry, and fishing	2.1	0.5
Mining, manufacturing, electricity, gas and water supply, sewerage, waste management, remediation activities	1.5	0.8
Construction	0.7	0.8
Wholesale and retail trade, repair of motor vehicles and motorcycles, transportation, and storage; accommodation and food service activities	0.7	1.3
Information and communication	0.4	0.2
Financial and insurance activities	0.2	1.2
Real estate activities	1.0	1.7
Professional, scientific, and technical activities; administrative and support service activities	0.4	0.5

114 Energy Poverty Toolkit Analytica 2023 https://www.analyticamk.org/images/2023/08/_priracnik_final_EN.pdf

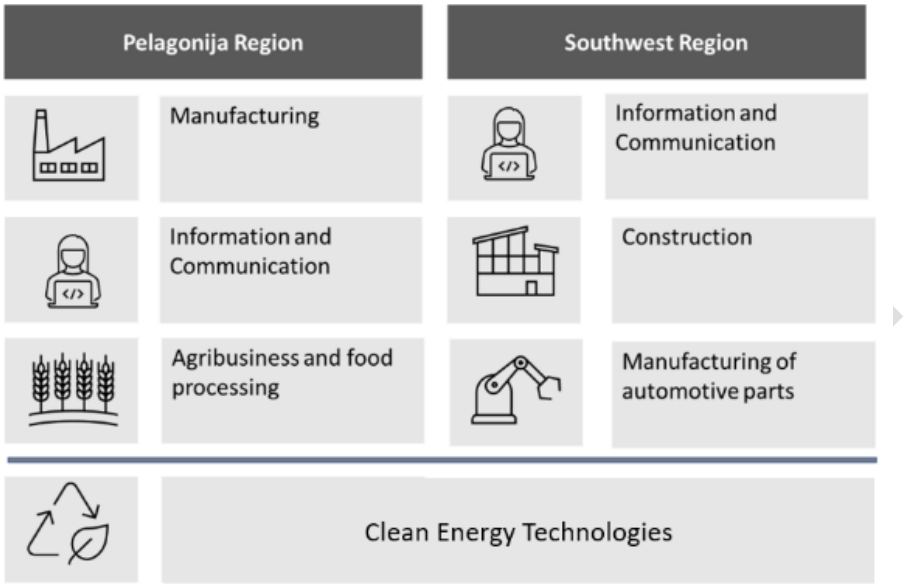
115 Just Transition Roadmap May 2023

116 Aide Memoire ACT IP Scoping Mission 22-25 May, Skopje, North Macedonia

117 same

Public administration and defense; compulsory social security; education; human health and social work activities	0.7	1
RSTU Arts, entertainment and recreation, repair of household goods and other services	0.6	0.8

Figure 18 Sectors with highest development potential in Pelagonia and Southwest region (PwC ESM study 2023)



72. Currently, the non-government initiatives to support affected people in the two regions are also limited. One example is the EBRD's investment with the ESM for the construction and operation of a 30 MW solar photovoltaic project across two sites. As part of the investment, the Bank supports the capacity enhancement of the company to actively contribute to the preparation of regional economic development measures, as well as the development and implementation reskilling and redeployment initiative to improve access to market-relevant skills and employment opportunities for affected workers.[118] While there are some discussions and initiatives to encourage workers to move to solar photovoltaic power plants (PVPPs), this is not a popular choice now due to a perceived lack of job security. [119]

73. There are some minor but positive examples of initiatives supporting people's upskilling and reskilling by private companies in the affected regions. Taskforce in Pelagonia has supported about 1,500 people from other professions to re-qualify to work in IT.[120] It also provides good salaries and incentives, and support employment of older people, who may face ageism discrimination in the labour market. The latter is particularly important, since according to the Economic Chamber of North Macedonia – Regional Office representatives in Bitola, particularly citizens above 55 (predominantly from rural areas) are unemployed and face challenges with re-skilling in both the Pelagonia and the Southwest region. [121]

118 EBRD Projects North Macedonia https://www.ebrd.com/work-with-us/projects/psd/53692.html

119 Aide Memoire ACT IP Scoping Mission 22-25 May, Skopje, North Macedonia

120 Interview with representatives from Regional Office Bitola - Economic Chamber of North Macedonia (15.06.2023)

121 same

74. Besides being an economic opportunity, the coal-phase out offers an opportunity to improve the quality of life in both regions, including through air, water, and coil pollution reduction.[122] Dust and sulphur dioxide emissions from the power plant are consistently higher than emissions' legal limits. For example, the two stacks of the Bitola power plant, Bitola B1+B2 (60,422 tonnes) and Bitola B3 (24,091 tonnes) remain the country's most significant source of SO_2 emissions. In the past few years, the plant has frequently been ranked among Europe's top five emitters of pollutants.[123] In addition, coal ash, a by-product of the electricity production process, is deposited in the open near the plant and was found to contain heavy metals whose radioactive levels also exceed allowed limits, contaminating local soil and water.

75. These local air pollution levels continue to pose significant health risks for citizens. A Bankwatch analysis from 2021 shows that fine dust PM2.5 concentrations alone are responsible for up to 8 % of all deaths among adults in Novaci – the closest rural municipality to the TPP Bitola.[124] The study claims that if Bitola had complied with its emissions ceilings, it would have avoided almost 300 deaths in North Macedonia in 2020. While no country-specific data has been identified, a study for Western Balkans also highlighted air pollution effects on children: in 2020, in the Western Balkans, there were 6,290 recorded days of asthma symptoms.[125] Additionally, in 2020, an estimated 212 cardiovascular and respiratory hospital admissions were due to PM2.5 from the emissions breaches, costing a total of EUR 0.28 million. Air pollution also impacts labour productivity: 74,349 workdays were lost due to sick leave caused by the pollutant $PM_{2.5}$ in 2020 in the region, costing the modelled Western Balkans countries EUR 6 million.

76. In summary, the energy transition in Pelagonia and the Southwest regions can catalyse innovative green development based on the strengths and opportunities for the regions, with appropriate planning, investments, and governance structures. Table 15 summarises the strengths and weaknesses, threats, and opportunities for Pelagonia and Southwest region that can either support or impede the just energy transition. These observations build upon the Just Transition Roadmap which advocates for a paradigm shift that will allow these regions to use the coal phase-out as an opportunity to achieve a high development rate and disentangle from their reliance on low value-added activities. Robust policy framework and market mechanisms (e.g., auctions) can help the country attract investments in the regions and gain access to cheaper and abundant clean energy. Green economy transition will also create new high value-added opportunities, in a field where technologies are changing rapidly, creating new investment opportunities and knock-on effects from increased innovation. Therefore, both regions can move from labour-intensive to knowledge-intensive and resource-efficient sectors, through restructuring their development patterns and ensuring human capital development.

122 Comply or close – Bankwatch June 2023 2023_06_28_Comply-or-close.pdf (bankwatch.org)

123 North Macedonians' go slow on greener energy is costing lives 2022 https://balkaninsight.com/2022/04/06/north-macedonias-go-slow-on-greener-energy-is-costing-lives/

124 Comply or close – Bankwatch June 2023 2023_06_28_Comply-or-close.pdf (bankwatch.org)

125 same.

Table 15 SWOT Analysis for Pelagonia and Southwest regions

Strengths	Weaknesses	Opportunities	Threats
Palagonia region			
Highest salaries next to Skopje region **Higher GDP per capita than the national average** **Demand on the skilled workforce**	Decline of agriculture as a traditional sector Poorly developed road infrastructure High dependence on mining and querying Skills mismatch Women's low participation in the labour market	Revitalizing agriculture and manufacturing sector Reskilling for IT Equip transition affected workers with skills either for internal redeployments or external job transfers Support upskilling of target groups - e.g., women and youth with a focus on green and digital skills and energy efficiency competences to ensure development of the necessary talent pools for energy sector and close gender gaps	Highest population decline nationwide, with low natality and aging population. Public health impacts from environmental pollution of coal plants and mines Relatively week institutional framework for human capital development in the county at national/regional/sectoral; level Unequal distribution of care work affects the capacity of all women to productively contribute to the economy.
Southwest region			
A significant share of young employable population **Low dependence on mining** **Demand for the skilled workforce**	Lower GDP per capita than the national average No railway infrastructure in large cities Skills mismatch Women's low participation in the labour market	Tourism improvement Blue economy development initiatives Equip the workers directly or indirectly affected by the transition with the market-relevant skills required for either internal redeployments or external job transfers across the regional labour market Support the upskilling of other target groups, e.g. women with a focus on green and digital skills and energy efficiency competences to ensure development of the necessary talent pools for energy sector and close gender gaps	Lowest fertility rate in the country Relatively week institutional framework for human capital development in the county at national/regional and sectoral levels The unequal distribution of care work affects the capacity of all women to productively contribute to the economy.

2.8 Role of Private Sector, Innovation, and Leverage of Resources

77. Most of the active companies in North Macedonia are mico companies with one to nine employees (82%) in 2021. Only 0.3% of active business entities employ over 250 employees. In 2020, micro, small, and medium-sized enterprises (MSMEs) prevailed in North Macedonia, representing 99%

of active companies.[126] Small and medium-sized enterprises (SMEs) represent 99 percent of the total registered companies and employ 75% of the country's workforce in North Macedonia. While the number of active companies in North Macedonia has grown over the year, 2020 saw a 4% dip compared to 2019 due to the pandemic.[127]

78.Private sector innovation, research and development could play a significant role in the accelerated coal transition process, but North Macedonia is lagging on these aspects. North Macedonia ranks 82 out of 141 countries in the Global Competitiveness and Innovation Report 2019 and 74 out of 154 in the Competitive Industrial Performance Index 2022. The European Innovation Scoreboard characterises North Macedonia as an emerging innovator, with performance at 46% of the EU average. Performance is below the average of the emerging innovators (50%) but is increasing (14.5%-points) at a rate higher than that of the EU (9.9%-points) during 2006-2023.[128] This means North Macedonia's performance gap with the EU is shrinking. Since the EU is the country's leading trade partner, the value chain integration should be closer aligned with the EU internal market *acquis* and compliance with the EU standards, as well as the European Green Deal and the Circular Economy Action Plan.[129]

79. The Republic of North Macedonia strives to include energy transition technologies and measures in its research and innovation (R&I) priorities concerning research, innovation, and competitiveness. The Smart Specialisation Strategy from 2023 identified the energy sector as one of the priority areas that need innovation. The NECP identifies the need for frequent revision of the energy-related curricula at all educational levels to follow the innovative trends in science and technology, especially in energy transition.

80. In terms of funding the research and innovation activities related to energy and climate, the country plans to continue the national support via the mechanisms of the Fund for Innovation and Technology Development (FITD) to support innovation in MSMEs. The FITD's programmes also include possibilities for new mechanisms targeting the public sector and large enterprises. These support mechanisms will enable knowledge and technology transfer between the scientific institutions and the industry, thus enhancing the competitiveness of the business sector and, at the same time, supporting industry-driven science. Additionally, the access to international support from the EU research and innovation programs (like Horizon Europe) and other donor funds should be further enhanced by establishing effective project management units in the responsible ministries (comprised of multidisciplinary officers involved in the planning, evaluation, and monitoring procedures) and by increasing the competences of the institutions to absorb such funds effectively.[130]

81. Regarding competitiveness, the NECP advises that SMEs should be encouraged and supported to diversify their portfolio of services and products in RES and EE by providing suitable financial and technical mechanisms. The mechanisms included in the FITD programs (like co-financing grants, business accelerators, technology transfer offices, Science Technology Park, etc.) could be a good starting point for improving the business environment and ensuring the competitiveness of

126 same

127 State Statistical Office 2021

128 European Innovation Scoreboard - North Macedonia 2023 ec_rtd_eis-country-profile-mk.pdf (europa.eu)

129 same

130 NECP 2022

companies.[131] SMEs' greening efforts have been encouraged by increased access to finance. The Development Bank of North Macedonia has become essential in fostering green lending to SME projects, including as part of COVID-19 recovery programs. Moreover, the recently adopted Plan for Accelerated Growth (2022-2026) is expected to provide an impetus to greening measures by introducing several instruments to promote and finance SMEs' green projects.

82. An opportunity to cushion the coal-phase out impact on the labour market is by considering further investments by both FDIs and domestic investors in the Technological Industrial Development Zones (TIDZ) or the municipal industrial zones (MIZ). An Industrial zone is a part of the territory of the Republic of North Macedonia owned by the Republic of North Macedonia, as a specially fenced and marked area that is a functional unit in which activities are performed under conditions prescribed by the specific laws.[132] These are areas of land connected to infrastructure (transportation, power, water, wastewater, and supporting services) usually in the periphery of a city, for the purposes of industrial development. There are currently 15 operational TIDZs, among which are the zone in Kichevo, Bitola and Struga [133] and a new planned green zone Gevgelija. The latter intends to provide green infrastructure and attract climate smart businesses through cooperation between local businesses, community and authorities to reduce waste and pollution, efficiently share resources (such as information, materials, water, energy, and natural resources), and help achieve sustainable development , with the intention of increasing economic gains e and improving environmental quality . The zones have managed to attract 34 large MNEs nationwide in several strategic industries such as automotive, domestic appliances, construction materials and batteries. Many municipalities, including those in the Pelagonia and the Southwest regions have also established municipal industrial zones (MIZ) at different levels of development and size of investments. Particularly the municipal industrial zones are underutilized mechanism for attraction of both foreign and domestic investors, that can create new jobs in the coal-affected regions.

83. Finally, North Macedonia provides incentives for attracting and supporting both domestic and foreign investors via its industrial zones, as well as via the Law for Financial Support of Investment enacted in 2018 to support accelerated technological growth of the manufacturing sector. The industrial zones and subsidies continue to play a crucial role in bringing know-how to the country and enabling private sector investments. Therefore, they can be a catalyst for new investments and job creation in the coal-affected regions. The incentives offered in TIDZs and MIZs are summarized in the following table.

131 same.

132 Industrial Zones https://investinseregion.mk/index.php/en/poddrska-za-msp-2/zoni-za-investiranje/indz?contrast=highcontrast3

133 According to the TIDZ web site information, https://fez.gov.mk/en/home-english/

Table 16 Overview of the current Technological and Municipal Industrial Zone Incentives

Type of support	Law for TIDZ[134]	Municipal Industrial Zones (MIZ)[135]
Capital Expenditure (CapEx) cash incentive	✓ Standard structure: Cash incentive up to 10% on capital investment (CapEx) budget. Maximum cumulation up to 50% of eligible investment costs (including the personal income tax benefit). ✓ Flex, advanced and premium structure: individualized approach based on business plan analysis. Increased cash incentive up to 25% based on CapEx plus tax exemptions.	✓ Covering 10% of the annual costs for construction of facilities, procurement of equipment over 5-year horizon, but not higher that 50% on aggregate amount (Based on Law for financial support of investments); ✓ Cash incentive of additional 10% on the same capital investment for competitiveness increase (revenue growth) over the same period
Personal Income Tax (PIT) Exemption	Up to 10-year exemption from (or paid subsidies) personal income tax.	New employment benefits subsidy over the same period.
Corporate Tax	Up to 10 years from the start of the operations.	No incentives.
Value Added Tax (VAT)	VAT exemption on: ✓ goods and services imports in the TIDZ; ✓ turnover of goods and services within the TIDZs.	No incentives.
Import duties	✓ Exemption of import duties for imported goods in the zones; ✓ Exemption from customs guarantee obligation for import of goods for the following industries: ICT, R&D and new technology development based on outstanding environmental standards.	No incentives.
Land Infrastructure development (communal) fee	Exemption on the land infrastructure development fee.	Municipality can decrease communal tax for investors in the MIZ.
Land lease	Beneficial land lease price of EUR 0.1 per 1 m^2 annually up to 99 years. However, there is a land operating & maintenance fee in addition to land lease fee.	Auctions for land starting with 1EUR per m2.
Workforce training and re-skilling costs	Employee training cost remuneration for general and special skills up to 50% from the total CapEx for general skills, and up to 25% from the total CapEx for special skills.	Up to 50% of the expenses for R&D activities and new market penetration.

2.9 Barriers to Just Transition Away from Coal

79. The energy security concerns are an important factor in transition away from coal. Given coal's predominant role in North Macedonia's generation, coal phase out, must be supplemented by transition measures, and large investments in renewables and the grid. Furthermore, ending coal mining activities will require remediation which is costly for ESM, and the country as whole.

84. The need to ensure just transition presents another key challenge for Southwest and Pelagonia regions. The two regions, facing the coal phase out contribute approximately 19% to the total GDP of the country.[136] The salaries of employees in this sector are significantly higher than in other industries, with an average net salary equal to EUR 720 vs an average market salary of EUR 500/month. Although coal sector does not generate significant absolute number of jobs, dependency and transition risks exist across the coal ecosystem on many layers. For example, there are no specific measures targeting

134 For the TIDZ, this is the relevant law. The Law for financial support of investment is essentially the same yet addresses the local companies as well outside the TID zones.

135 Law on industrial green zones (municipal industrial zones) З А К О Н (thebalkanforum.org)

136 SSO Regional statistics (2022) and PwC ESM Analysis 2023

population and supply chains in these two most affected regions. This may cause lack of societal buy-in and resistance to energy transition if no concrete socio-economic measures are envisioned. Further details and the role of IP in addressing them, are outlined in Annex 1.

3. Programme Description

85. As a Government-designed and owned Investment Plan, the IP reflects the Country's priorities regarding the accelerated coal transition. The main objective of the ACT Investment Programme is to tackle critical barriers related to governance, people, and infrastructure; address funding gaps leading to the successful implementation of country-level strategies and kick-starting projects; build support at the local and regional levels; and accelerate the retirement of existing coal assets (coal mines and coal power plants) together with enabling new economic activities for those impacted by the transition.

86. Based on the extensive stakeholder engagement and strategic documents, the ACT investment plan: 1) focusses on the most affected regions - Pelagonia and Southwest, 2) prioritises the energy sector transformation due to its largest impact on GHG emissions, 3) recognises the need for grid enhancement, including storage solutions, before further investments in renewable energy sources, 4) and sees human capital as pivotal horizontal dimension across investment activities.

87. This IP aims to support North Macedonia in shifting from a predominantly coal-powered into a predominantly renewable energy-sourced economy in a socially just way that fosters economic opportunities for the people in coal-reliant regions, while attracting public and private climate-smart investments.

88. Throughout the projects' delivery, human capital development will remain at the core, as accelerating coal transition requires new skills and a labour market shift from coal-based jobs to clean energy jobs. Both the Just Transition Roadmap adopted in 2023, and stakeholder consultations during IP preparation, emphasised high unemployment rate, including among youth, and gender gap in the labour market, as well as the lack of skilled workforce, especially in the energy sector. They also highlighted brain drain patterns already present in the Southwest and Pelagonia regions, weak education systems, especially TVET, and labour market policies unprepared for shift to green and digital skills and jobs, among the key transition challenges. To achieve this goal, it is essential to incorporate re-skilling and upskilling initiatives for workers affected by the transition, as well as for young people (with a focus on NEETS – Not in Employment, Education of Training), without any previous occupational skills or work experience, while simultaneously improving education and facilitating labour market reforms. This will ensure that both current and future workforce can acquire the necessary skills to secure decent employment opportunities in the emerging green economy to unlock the job potential of renewables and other clean energy solutions. This entails offering basic vocational skills training and re/upskilling. At the policy level, the programme will support the development of active education and labour market polices, such as greening TVET system, developing green occupational standards etc, support for the development of SMEs, with the focus on job quality, going beyond the narrow counting of job numbers.

89. The IP also aims to enhance the participation of women in the labour force, particularly on green and digital skills. This can be achieved by capitalising on the growing economic opportunities arising from the expansion of renewable energy sources. Considering the current occupational segregation in energy sector, men will naturally benefit from reskilling and upskilling opportunities, enabling them tap into new job opportunities brough by JT. Women may get primarily administrative jobs, unless measures are taken to train them in relevant technical, entrepreneurship skills. Thus, the IP will integrate a gender component to support women in accessing alternative livelihoods including re- and upskilling, leadership, entrepreneurship, financial literacy programs to promote self-employment. Activities will also be developed at the sectoral level by providing support to women's professional networks. At the policy level, activities will encompass the integration of recommendations from EBRD's Toolkit for Accelerating Gender in Climate Strategies - e.g., on how to set sex-disaggregated benchmarks for the strategy KPIs or involve women in the decision-making process related to the design and implementation of such strategies. This could also include strengthening private sector/municipality-driven legal and regulatory environment for care provision (childcare, elderly care)**.**

3.1 Overview of the proposed interventions

90. Specifically, the ACT IP of North Macedonia consists of the following three projects and components that will catalyse the coal transition:

- Project 1: Retiring coal assets and re-powering with RE
- Project 2: Socio-economic Regeneration of Pelagonia and Southwest regions
- Project 3: Energy efficiency, clean heating, and distributed generation program

3.1.1 Project 1: Retiring coal assets and RE-powering with RE

Project 1 focuses on **the retirement of coal assets and re-powering with RE.** The objectives of Project 1 are fourfold: (a) contributing to the country's NDC target via substantial reduction of energy sector emissions through a full coal-phase out, (b) ensuring environmental remediation and effective land repurposing of former coal mining lands, including for RE deployment, (c) accelerating transition and ensuring energy security through investments in grid strengthening, synchronous condensers and storage solutions in the affected regions to enable re-powering with renewables, (d) promoting access to alternative livelihoods for those affected by the transition process through reskilling and upskilling, towards just transition. The Project contains three components:

> **Component A** supports **powerplant retirement, mine remediation and repurposing.** The former includes discontinuing the coal power generation, disconnecting the assets from the system, demolition and blasting activities, and site clearing and remediation, unless viable repurposing alternatives are identified. The latter includes repurposing of post-mining lands and associated sites for alternative uses. This component also contains the governance element covering the development of the powerplant decommissioning plans.

Component B is a **PROSPECT programme - Providing Renewable Opportunities through Solar and Education in Coal Territories**. It focusses on solar PV deployment, with human capital development programme for the affected workforce. Given the current electricity import reliance (over 26% in 2023), price volatility and increased regional electricity and fossil fuel costs, North Macedonia needs to prevent increasing import reliance in the transition period, to protect vulnerable consumers and avoid exacerbation of energy poverty. As such, to enable coal plant retirement, it is critical to prioritise rapid deployment of renewables (including solar PV on coal mine sites) primarily via competitive mechanisms. The component will also include a programme for the affected workforce. It will cover the introduction of a series of high quality, nationally accredited training courses, including gender component, designed and implemented in partnership with local TVET and higher education institutions. In addition, the programme will support development of green education policies and regulatory frameworks, to ensure that local educational institutions provide affected workers with required skills to obtain decent employment.

Component C is PowerHub: Grid Strengthening, Batteries, Training for Tomorrow. It focuses on the **deployment of enabling infrastructure to support RE integration in the regions**, including to provide improved access to skills and employment for affected communities. When enabling the transition to intermittent renewables, it will be important to provide grid upgrades **and** energy **storage solutions** and ensure **grid flexibility and balancing**, to provide stable electricity supply and minimise the role of gas in the baseload. To this end, up to 100MW of storage (e.g., utility-scale battery storage energy systems) could be deployed on power plant/mine sites, together with grid investments. Supporting RE integration and transition to intermittent renewables requires skilled workers, including planning, engineering, technical and operational professionals, currently in deficit. Thus, the component will also support the development of training centre with MEPSO, the transmission system operator, including creation of opportunities for women and girls in green occupations.

The project's three components are at the heart of delivering on the energy transition in North Macedonia, and are well-aligned with the pillars of the CIF ACT programme, including: (a) *infrastructure* – mine closure, plant decommissioning, reclamation and repurposing, repowering with RE and storage and ancillary services; (b) *people* – contributing to implementation of social plans (including Just Transition Roadmap) and promoting access to alternative livelihoods for those affected by the transition process through reskilling and upskilling, and (c) *governance* via support in developing asset decommissioning plans, and auction design to support the attraction private sector investments, as well as capacity building for local vocation training institutions.

3.1.2. Project 2: Socio-economic Regeneration of Pelagonia and Southwest regions

Project 2 focusses on the socio-economic regeneration of Pelagonia and the Southwest regions. The overarching goals of this project are to: (a) support existing companies in the region in green transition and expansion, to provide sustainable employment opportunities in green and climate-smart business segments, (b) support broader human capital development in the region via upskilling and re-skilling of the workforce, as well as measures to support women's and youth's integration into the labour market; (c) attract new climate-smart investments into Southwest and Pelagonia regions to support economic regeneration (e.g. smart agriculture, batteries etc.) including though improving local infrastructure. The following sections elaborate on the proposed implementation approach, key

investments and implementation considerations related to the proposed initiatives. Project 2 is comprised of:

- **Component A: Green & Growth (G&G) programme** will focus on channelling finance via local partner financial institutions (PFIs) to the Southwest and Pelagonia regions. The G&G programme would have two partially overlapping windows: (1) green - to support regional SMEs' low carbon transition via energy efficiency and renewable energy investments; and (2) growth – to support regional business growth and human capital development via capex investments. Via Advisory for Small Businesses programme, this component will support companies in increasing employability via provision of trainings, as well as foster the entrepreneurial ecosystem in the regions though support to start-ups.

  Component B is Revitalise: industrial zones for economic regeneration. It will support the development of industrial zones in the Southwest and Pelagonia regions to address barriers to attracting domestic and foreign investments in high value-added industries in line with state aid rules. It will also support municipalities in strengthening their planning capacities for zones' development and broader socio-economic planning.

  Component C targets an **economic regeneration programme** to support the attraction of corporate climate-smart investments in Southwest and Pelagonia regions, coupled with human capital development. This component will support direct financing to corporates by EBRD and IFC, including via debt, equity, or mezzanine instruments. These components will also help companies to implement dedicated programmes to increase engagement of women in technical and managerial positions, through employing higher standards of gender equality across operations, implementing internship, mentorship, and other structured learning programs for women. The human capital development aspect of this component will target not only affected workers, but also create the opportunities for other target groups, with a focus on green and digital skills and energy efficiency competences to ensure that the benefits of the green economy transition are shared, and no one is left behind. This is of particularly relevance for women, who unless measures are taken to upskill them, might get only fraction of the jobs brought by the green transition. At the policy level, support will include establishment of public-private partnership mechanisms, to enable private sector employers to inform the development of occupational and skills standards in line with industry needs.

The project's three components align with the pillars of the CIF ACT programme, including: (a) *infrastructure* – investment in municipal industrial zones and related infrastructure; (b) *people* – contributing to human capital development for climate- smart jobs and support for SMEs to invest in climate-smart skills; and (c) *governance* - supporting local governments' capacity to manage industrial zones and attract climate-smart investors as well as capacity building for local educational and training providers.

3.1.3 Project 3: Energy efficiency, clean heating, and distributed generation program

Project 3 focuses on **energy efficiency, clean heating and distributed generation,** with the following objectives: (a) to reduce electricity demand through retrofits, enabling accelerated coal phase out and lowering energy costs for the population, (b) to improve air quality in coal-reliant municipalities via

clean heating investments, (c) to introduce new income generating opportunities for local communities via distributed generation, and (d) enable new job creation opportunities in energy efficiency and distributed generation in the affected regions. This includes:

Component A is ECOBOOST: Empowering Coal Communities with Efficient and Renewable Lending. It focusses on providing: (a) concessional investments for energy efficiency, and distributed generation to households in coal-reliant regions via partner financial institutions, (b) supporting energy efficiency and distributed generation of public sector buildings via municipal lending building. It will help to reduce energy costs to the population, reduce energy demand and create new economic opportunities, including though jobs in EE retrofits and distributed RE, and though selling electricity from prosumers.

Component B is **EcoCommune: Community-Centric Clean Energy Initiative.** This Component will work on towards the same objectives but will target less commercially viable investments with higher levels of concessionally. It will focus on a) clean heating, b) household energy efficiency and rooftop solar installation programme for vulnerable consumers, and c) public sector buildings. It will also explore the opportunity to support the development of energy communities.

The project's two components align with the pillars of the CIF ACT programme, including: (a) i*nfrastructure* – supporting investment in EE infrastructure both for community and residential buildings as well as clean heating infrastructure; (b) *people* – supporting the living standard and quality of life of people by improving their infrastructure and protecting against high electricity bills, as well as enabling creation of local EE and distributed RE jobs; and (c) *governance* by supporting municipalities in implementation of municipal EE plans, as well as and local communities in taking active part in energy transition.

91. Detailed project concepts are available in Annex 4.

3.2. Investment Preparation Activities

92. In preparation for the Investment Plan, an additional USD 0.5 million investment plan preparation grant (IPPG) was utilised for specific studies and activities supporting the IP via MDBs. The North Macedonian Government accessed the USD 0.5 million to conduct the following investment plan preparation activities: 1) Capacity Building Support to the Ministry of Economy – Energy Sector to lead the drafting of the Accelerated Coal Transition Investment Plan to ensure inclusive, coordinated, and well-communicated process by embedding stakeholder engagement expert in the Ministry of Economy's Energy Sector, and acquiring support from the technical advisor; 2) Assessment of climate-smart economic diversification opportunities in Pelagonia and Southwest regions; 3) Market analysis of energy efficiency and clean heating opportunities for coal-reliant communities; 4) Grid infrastructure, power plant repurposing (using CIF's ReACT tool) and storage study to support integration of renewable sources in the Southwest and Pelagonia regions and 5) coal mine land remediation and repurposing study. The IP preparation also benefited from the baseline assessment of the EBRD's ongoing technical cooperation support to the ESM, which included policy and regulatory diagnostic assessment of the TVET and adult education and (re-)training system in North Macedonia; review of the existing JT delivery context at the municipal level including governance, strategies, and

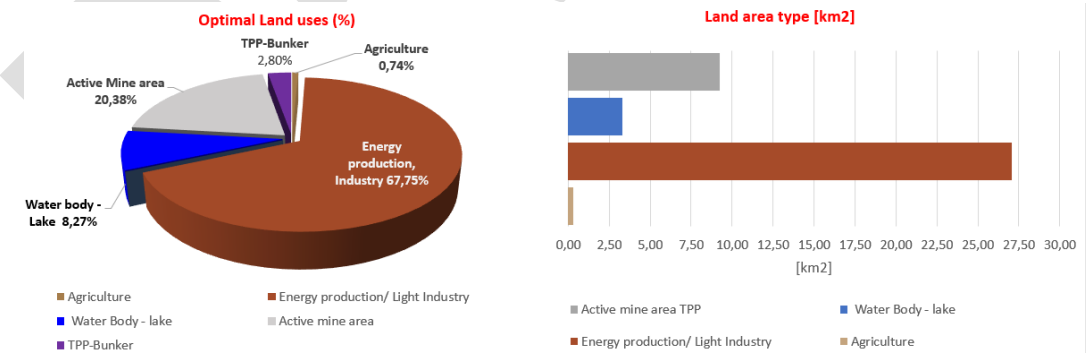
action plans (such as local employment plans), as well as implementation capacities of responsible stakeholders (e.g. local employment centres).

3.3 Enabling technologies and innovative models

93. Lessons learned from past cases of transition provide examples for technical and financial models of power plant decommissioning and repurposing. In the case of North Macedonia, these have been considered in the IP preparation processes via a technical study, supported by the IPPG grant. The study utilised CIF's ReACT tool[137] to assess the viability of Paris-aligned options for repurposing Oslomej and Bitola TPPs. These were assessed against several criteria, including, but not limited to technological and financial feasibility, ability to contribute to energy security of the country, job retention potential for diverse groups (women, men, etc.), etc. Limited repurposing opportunities for power plant infrastructure have been identified to date (e.g. for synchronous condenser). For now, decommissioning and site repurposing is deemed as the most appropriate option for most of the units.

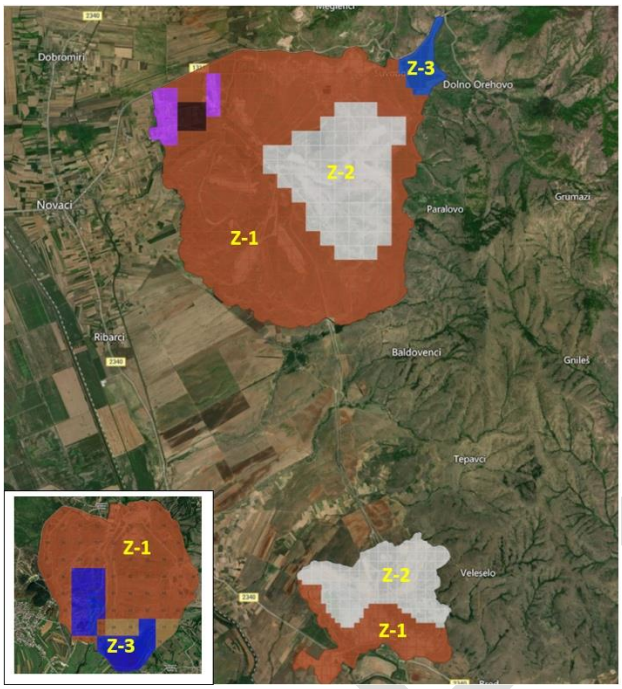
94. At the same time, a study on land repurposing assessment for coal mines, conducted as part of IPPG, has highlighted several options for coal mine land and ash disposal site repurposing. The Land Use Repurposing Assessment (LURA) assessment, conducted by World Bank, examined the sites based on five criteria: location, geotechnical risks and legacies, topographical and hydrological conditions, environmental conditions and risks, and development opportunities. It then produced a map of the area, depicting zones where specific repurposing options would be most likely to succeed, given the conditions and the community's needs. The map below provides an overview of the repurposing potential of the ESM mine concession (including parts that are still in operation as well as decommissioned areas). Figure 20 shows the distribution of combined optimal land use types, as a per centage of total area in km^2.

Figure 19 Combined optimal land uses and areas for ESM three selected areas



137 https://www.cif.org/knowledge-documents/react-simplified-guide-repurpose-coal-assets

Figure 20 Combined optimal land use map ESM mine lands and selected areas (Oslomej out of scale)



95. Based on this modelling, deployment of renewables (or light industry) has been identified as the most optimal option for coal mine land repurposing. These have been integrated in IP Project 1. The Project also integrates governance support for conducting renewable energy auctions to attract private investments, based on lessons learnt from EU and other markets in designing such mechanisms. Following power plant decommissioning, the sites could also be used for the deployment of supporting infrastructure, including synchronous condensers and storage solutions, including batteries, currently not deployed (or regulated) in North Macedonia.

4. Financing Plan and Instruments

96. The IP is structured to deliver transformational impact and accelerate North Macedonia's coal transition through three complementary projects that address CIF ACT's governance, infrastructure and people pillars. The described costs, composition and scale of financing instruments have been calibrated through early estimates and based on delivering projects of the same archetypes by MDB partners.

97. In total, USD 85 million is allocated to North Macedonia from CIF ACT resources, combining concessional loans (USD 76.5 millions) to be extended in a mixture of public and private lending terms and grants (USD 8 million) to be used in the form of technical assistance and investment or incentive grants. Deploying the CIF ACT funding is expected to mobilise a further USD 471.35 million of MDB resources and directly catalyse over USD 85 million in private sector investments and USD 35 million in public sector investment. The breakdown of the ACT funding for each Project is described below and presented in Table 17. All CIF funding will be channelled through the EBRD, World Bank and IFC.

Table 17 Indicative summary of financing plan (in USD million)

Investment Plan Components	MDBs	MDB share	CIF ACT	Private Sector	Gov/SOE/ other	Total	Pillars		
							Infrastructure	People	Governance
PROJECT 1: RETIRING COAL ASSETS AND RE-POWERING WITH RE									
A: Powerplant retirement, mine remediation and mine repurposing	WB, EBRD	110	(c) 25 (g) 0.5		35	170.5	V		V
B: PROSPECT: Providing Renewable Opportunities through Solar and Education in Coal Territories	EBRD, IFC	230	(g) 1.8	75		306.8	V	V	V
C: PowerHub: Grid Strengthening, Batteries, Training for Tomorrow	EBRD, IFC, WB	75	(c) 27 (g) 2.5	10		114.5	V	V	
PROJECT 2: SOCIO-ECONOMIC REGENERATION OF PELAGONIA AND SOUTHWEST REGIONS									
A: Green & Growth programme for SMEs	EBRD	5.3	(c) 2.7 (g) 1.95			9.95	V	V	
B: Revitalise: industrial zones for economic regeneration	EBRD, WB	10	(c) 5.5 (g) 0.5			16	V	V	V
C: Climate-smart economic regeneration programme	EBRD, IFC	22	(c) 2.7 (g) 0.65			25.35		V	
PROJECT 3: ENERGY EFFICIENCY (EE), CLEAN HEATING, AND DISTRIBUTED GENERATION PROGRAM									
A: ECOBOOST: Empowering Coal Communities with Efficient and Renewable Lending	EBRD	8	(c) 5.6			13.6	V	V	
B: EcoCommune: Community-Centric Clean Energy Initiative	WB	11	(c) 8 (g) 0.6			19.6	V	V	
IP Total		**471.3**	**(c) 76.5 (g) 8.5**	**85**	**35**	**676.3**			

98. Project 1 - Retiring coal assets and re-powering with RE: USD 56.8 million of ACT funding will be allocated to this project including USD 4.8 million grants and USD 52 million concessional loans. Grants would be used for 'governance' and 'people' pillars, including development of decommissioning plans, auctions for renewables, and human capital development activities, some grant financing will also be used for batteries, given the high cost of the technology and its role in ensuring energy security. Concessional finance will be deployed for the less commercially viable projects including powerplant decommissioning, mine remediation and repurposing, and grid strengthening. New solar investments (Component B) are expected to be financed on commercial terms.

99. Project 2 – Socio-economic Regeneration of Pelagonia and Southwest regions, will deploy approximately USD 10.9 million ACT concessional finance, USD 3.1 million in grants and USD 37.3 million in MDB loans. This concessional funding will leverage financing for businesses to strengthen new economic activity in the two affected regions, through a combination of direct lending to larger businesses and reaching smaller companies through partner financial institutions. ACT resources will support broader human capital development in the region, and work with private sector employers to enhance women's and youth's integration into the labour market. Furthermore, the project will support the strengthening of the municipal plans under 'governance' pillar, focussing on enabling infrastructure and equipment in industrial zones to attract further private sector investment (including FDI) into the Pelagonia and Southwest regions.

100. Project 3 Energy efficiency, clean heating, and distributed generation program proposes to use USD 13.6 million ACT concessional finance, and USD 0.6 million in grants to leverage USD 19 million in MDB investments in energy efficiency, clean heating, and distributed generation technologies, and lead to new jobs and income generating opportunities both for public buildings and the residential sector. The interventions for public buildings will be channelled either through a municipal or at central level, depending on the financial position of the municipalities. Financing for the residential sector would provide concessional investments blended with MDB financing; several financing mechanisms are being explored including intermediated financing through financial institutions to reach households to reduce energy demand, costs, and create new economic opportunities. Higher concessionality will be provided for vulnerable consumers and clean heating solutions.

101. CIF support will be key to unlock new investment in the coal-affected regions through addressing market barriers, improving the bankability of projects, introducing new clean energy technologies, and ensuring that the enabling infrastructure is present to crowd in further private sector investment. MDBs' use of concessional resources (including grants) will be limited and commensurate to contribute to market development and avoid the introduction of distortions. Financing packages for project components will be calibrated in line with CIF financial terms and conditions defining the relevant concessional policy. Specifically, Table 18 outlines public sector lending terms; for private sector projects, the degree of concessionality of CIF resources will be determined by the deploying MDBs on a project-by-project basis, applying common blended concessional finance principles. To mitigate the impact of the IP delivery on the Macedonian public financing, the MDBs will explore modalities to extend public sub-sovereign projects without the need for state guarantees, wherever appropriate given local borrowing capacities.

During the IP implementation, the provisions from the national Public Debt Law prescribing the borrowing procedure must be followed.

Table 18 CIF Public sector lending terms and conditions applicable to North Macedonia

	Currency	Lending rate (fixed)	Maturity	Grace period	Principal repayments
Tier A (for shorter term loans)	USD	0.98 %	Up to 20 years	8 years	Equal semi-annual instalments after grace period
	EUR	0.56 %			
Tier B (for longer term loans)	USD	1.18 %	Up to 30 years		Up to 30 years
	EUR	0.68%			

5. Additional Development Activities

102. The European Union Delegation (EUD) and the EBRD have supported the Government in developing the territorial Just transition diagnostic and roadmap (JTD) to ensure that the transition benefits are shared and to keep vulnerable regions, communities, and workers from falling behind. This document was mentioned by stakeholders as one of the critical reference points for informing the IP pillars. The EU delegation in North Macedonia supports the EU4Green project, launched in 2022. It is an EU project implemented by Environment Agency Austria, financed by the European Commission. It aligns with the ambitious goals of the European Green Deal, adopted by the European Commission in December 2019, which envisions a resource-efficient and carbon-neutral Europe by 2050. By bolstering the Green Agenda's regional governance, the project seeks to support the Western Balkans in transitioning to a more sustainable and climate-resilient future, benefiting local and European markets. EU4Green has just opened offices in three Western Balkan countries: Albania, Bosnia and Herzegovina, and Serbia. By doing so, EU4Green aims to enable easier regional cooperation, contact, and exchange regarding environmental and climate issues while offering knowledge and technical assistance.

103. EIB in North Macedonia has a project on the City Climate Finance Gap Fund, which can help (a group of) municipalities with several tasks, including project definition and pre-feasibility work. The facility is up and running, and assignments could be launched swiftly in response to requests from municipalities. It could fit well with the geographic and coal transition focus of the Investment Plan to facilitate the implementation of investments by any financier in the municipalities.

104. KfW is very active in projects related to the green energy transition, including financing district heating in Bitola with ESM, which is under construction (EUR 39 million); Bogdanci Windpark Phase 2 with ESM (under implementation, EUR 18 million); rehabilitation of Large HPP' with ESM, under implementation (EUR 25 million); Energy Efficient Rehabilitation of Student Dormitories with the Ministry of Education under implementation EUR 20 million). KfW is also in the preparatory phase for Bitola PVPPs with the installed capacity of the approximately 160MW – partnering with ESM and EBRD. The ongoing feasibility study and the approximate budget is EUR 150 million. The Bank is also doing a pre-feasibility study for Bitola Solar District Heating.

105. The USAID Energy Program presented its activities supporting the energy-related legislation in North Macedonia and is currently reviewing the Strategic Investment Law. The Program pointed out that the DFC – US International Development Finance Corporation is also increasingly interested in

providing financing. USAID also conducted a study for the organisational restructuring of ESM. From the Program's experience, the critical energy transition challenge is also the balancing capacity.

106. UNDP presented their support for municipalities for energy efficiency. At the same time, GiZ, who conducts the Readiness preparation for the Green Climate Fund (GCF), informed that under GCF, North Macedonia will access funding for energy efficiency in public buildings led by the Agence Française de Développement (AFD) Group funds.

6. Implementation Potential with Risk Assessment

107. To be successful in implementing the ACT IP, there are several risks/barriers to be considered, summarized in Table 19.

Table 19 Country risks for energy transition and ACT IP's role in mitigation

Area	Barrier	Reason	ACT IP role
Governance	Policy uncertainty	Limited clarity on the exact dates of power plant decommissioning by unit due to energy security concerns, including import reliance and lack of replacement capacity. Lack of visibility of RE deployment targets by year, as well as market mechanisms can undermine investors' confidence and lead to under-deployment of RE, resulting in transition delays.	Support on transition planning as part of the projects (e.g., ESM decarbonisation support), will accelerate the set-out of the unit phase out dates in 2024 as part of national planning. Support in the development of auctions will accelerate private RE deployment, including via repurposing of coal-mining lands.
	Operational constraints	Country stakeholders lack time, resources and know-how to attract international financing and deliver on accelerated transition due to competing priorities.	MDB support as part of IP can help bring necessary capacity and expertise.
Infrastructure	Carbon lock-in	North Macedonia has extensive fossil fuel infrastructure and faces transition challenges due to sunk investment costs and long lifespans of these assets, creating potential inertia for longer FF asset operations.	Accelerating support for coal plant decommissioning, including with ACT concessional finance, directly reduces lock-in risks and accelerates the green transition.
	Lack of public grid infrastructure to support RE integration	Underinvestment in grids limits the capacity of RE absorption. This delays RE permit issuance, slows down RE scale up and fossil fuel phase out. Once operational, dispatch from RE risks being curtailed due to grid constraints.	Concessional finance support for grid projects linked to integration of RE investments on mine and power plant sites, as well as synchronous condensers to support frequency and voltage regulation, and storage solutions (incl. with grant support) for addressing RE intermittency as part of IP will support accelerated transition.
	Lack of expertise	Lack of expertise in land repurposing planning and environmental remediation to the best available standards (particularly for coal ash disposal sites) can lead to suboptimal land repurposing and environmental hazards.	Technical assistance from MDBs to ESM as part of project delivery under ACT IP will help to ensure optimal repurposing solutions in conditions of land scarcity, and environmental remediation to the highest standards.

People	Lack of societal buy-in	Concerns around jobs and future of fossil fuel-reliant communities, as well as energy security, associated with fossil fuel phase out may lead to a lack of societal buy in and delayed transition.	The programme supports equipping workers directly or indirectly affected by the transition with the market-relevant skills required for either internal redeployments or external job transfers across the labour market, in partnership with local education providers and employment agencies and based on assessments of local skills gaps and skills development opportunities. The program also supports capacity building in the Ministry of Economy to engage with local governments and local communities on just transition.
	Job growth and job losses will be unevenly distributed across skill levels, cities, and genders	While most of the new jobs will be created in medium and high-skilled occupations, low-skilled workers are most at risk of redundancies. Due to persisting gender stereotypes women may be able to obtain only a fraction of the job opportunities created.	The plan will support training of women and youth in in RE, EE, entrepreneurship, etc. (with a focus on young women and NEETS – Not in Employment, Education or Training), without any previous occupational skills or work experience. Dedicated programmes will help to increase engagement of women in technical and managerial positions, through employing higher standards of gender equality across operations, implementing internship, mentorship and other structured learning programs for female employees.
	Lack of holistic education reforms to ensure relevance and inclusivity	Current TVET systems are weak in supporting just transition and slow in responding to labour market needs. They lack the necessary governance mechanisms, are poorly financed, and lack sufficiently skilled teachers.	Supporting reform approaches at system level to facilitate implementation of required change brought by green transition.

7. Monitoring and Evaluation

108. In this ACT IP, North Macedonia is led by the following Theory of Change: *If* North Macedonia takes a comprehensive approach, involving retiring coal-fired TPPs, investing in renewables, grid, and storage, promoting energy efficiency, clean heating, economic regeneration and just transition for affected workers and communities, guided by strong governance structures, then it can accelerate coal transition and reduce emissions and local air pollution, while ensuring energy security, fostering climate-smart and inclusive economic regeneration of the Southwest and Pelagonia regions with a skilled green workforce, and empowering local communities to participate in and benefit from green transition.

110. North Macedonia responds to CIF's integrated approach to results measurement, as presented within the ACT Integrated Results Framework (IRF) in Appendix 7. CIF's integrated approach combines essential monitoring and accountability functions with a holistic multilevel and multidimensional approach, including a complex systems orientation, and emergent learning opportunities. Within this integrated approach, measurement of program and project impacts are captured via the multiple dimensions of monitoring, evaluation, learning, gender, and other key crosscutting approaches, aiming to deliver a nuanced and complete understanding of the program's progression, and thematic specificities, in delivering a complex and multifaceted program goal.

111. The program's performance is tracked via targeted, core indicators defined within the ACT IRF, in response to the ACT Theory of Change and its constituent objectives. The IRF also presents how each Project, and their components contribute to which indicators. The IRF first presents country level

indicators, moving to IP level ACT Core Indicators, and co-benefits, with baseline and targets provided where available.

112. System-wide analysis. The IRF serves as a fundamental instrument that grounds the country program's high-level goal statement in measurable national indicators and targets, and thereafter links the program's theoretical objectives with the measurable outcome-level results anticipated via its constituent project pipeline. As the IP is developed collaboratively with the Government of the Republic of North Macedonia, implementing MDB partners, and other stakeholders, the process of defining project objectives, and aggregating the related results via the IRF, constitutes a consistent and system-wide approach on the coherence of and between interventions, and on accountability between proposed goal statements and pragmatic results estimations.

113. Anticipated program impacts. The North Macedonian IP aims to deliver all ACT IP core objectives. The country's IRF will therefore track core indicators with respect to all Project components. The IRF will be responsive to any changing dynamics within individual projects, and under or over achievement of program-level results will allow for learning and adaptation.

114. Protocols for tracking. The monitoring and reporting of results will be a collaborative process among all stakeholders. Country focal points and implementing agencies, with support from the CIF Administrative Unit (AU) Monitoring and Reporting team, will lead on tracking the country IP impact indicators set out at IP approval. Implementing MDBs will monitor and report annually to the CIF AU all outcome-level core indicators relevant to each approved project, in accordance with the methodologies, reporting requirements and timelines set out within the ACT IRF, and within the forthcoming ACT M&R Toolkit. As such, MDBs will be responsible for incorporating these outcome-level indicators into the monitoring and reporting frameworks and mechanisms for each implemented project, alongside any optional outcome indicators and at least one co-indicator per project, also in accordance with the ACT IRF and ACT M&R Toolkit.

115. Country M&R workshops, anticipated at inception, midterm, and IP-conclusions along with any, as needed, interim country M&R workshops, will allow for multi-stakeholder cross-sectoral consensus on indictor progress, targets, methodologies, and related gaps, lessons, or enhancements, in accordance with the guidance set out by the CIF AU for the ACT program.

116. The ACT M&R Toolkit translates the ACT IRF into a practical and detailed guide which sets out definitions of indicators, measuring methods/approaches and frequency, roles, and responsibilities etc. related to transformational change and just transition. In addition to the MDBs own evaluation processes through their independent evaluation offices or other efforts, the MDB and country counterparts will participate in evaluation activities of the CIF. This includes independent program level mid and end-term evaluations and evaluations on key themes such as transformational change and just transition. Evaluative insights could also relate to diagnostic, design, implementation, economic value, and synthesis evaluations of programs and projects. The ACT IP evaluation will build upon and utilise existing monitoring and evaluation efforts in the country.

117. Any evaluation on transformational change will use the dimensions of transformational change as identified through the transformational change learning partnership and documented in the program design documents and evaluation guidance provided. Similarly, any evaluation of just transition will consider the CIF just transition framework and its associated dimensions. The guidance and questions provided in the ACT design document related to just transition, transformational

change and gender will be used to structure both formative and summative evaluative processes. These discussions will be structured around the ACT Investment response criteria.

118. A variety of evaluation methodologies may be deployed with a particular emphasis on enhancing participation in evaluation and learning processes as well as ensuring the rapid use of information for learning and course correction where required.

119. The detailed IRF framework together with ACT IP Co-benefits is presented in Annex 5.

Annex 1. Responsiveness to ACT Investment Criteria

ACT Criteria	Investment Plan Relevance for North Macedonia
1. Potential for Transformational Change	
Relevance	Transformational change from the IP is derived from coal transition, including retiring the two thermal power plants in Bitola and Oslomej, upstream mine land remediation, and re-powering with renewable energy, coupled with grid strengthening and storage deployment for energy security, while supporting the just transition for Southwest and Pelagonia regions for coal value chain employees and coal-reliant communities.
Systemic Change	The IP and associated funding provide the basis to move from planning to implementation of just energy transition in the country, including full coal phase out by the end of the decade. The envisioned plan is also expected to support the green economy transition of the Southwest and Pelagonia regions, enabling local businesses and communities to participate in sustainable and higher value-added activities. Implementation of the IP in North Macedonia will provide a demonstration effect for the Western Balkans (e.g. Serbia, Bosnia and Herzegovina and Montenegro), who are facing similar coal transition challenges and socio-economic contexts.
Speed	The programme will support the country's full coal phase out by 2030, which would be the first time such ambition is stated among CIF ACT countries. First projects for RE deployment and 'people' component are expected to start in 2024. It is expected that all funding will be utilised before 2030.
Scale	The programme supports the 82% net GHG emissions reduction target of North Macedonia by 2030, compared to 1990. It targets full installed coal-fired capacity of the country (764 MW), and deployment of over 400 MW of RE on former coal mine lands. It also targets just transition measures for the two affected regions – Southwest and Pelagonia.
Adaptive Sustainability	The programme will support national adaptation objectives, by reducing the country's reliance on coal-fired power plants, leading to reduction of water use in the cooling systems, and associated physical climate risks. The plan will also support the country's broader sustainable development, by accelerating energy transition, reducing air pollution, and supporting human capital development.
2. Potential for GHG Emissions Reduction/Avoidance	
Increased rate of renewable energy deployment	The programme will directly support increased RE deployment, targeting up to 400MW of installed solar PV on repurposed coal mine lands. In addition, auctions organised under IP's 'governance' pillar, will help to scale up private sector RE investments across the country, targeting up to additional 700MW of RE through private sector investments during the implementation period.
Reduction/avoidance of GHG emissions	Bitola and Oslomej TPPs currently emit c. 2.7 million tonnes of CO2/year. As such, the plan will result in substantive GHG reductions.
Contribution to technology development	The programme will support green economic regeneration in the Southwest and Pelagonia regions, including attracting climate-smart companies and investments. This will contribute to both regional and national technological development, including in RE supply chains. The programme will also support deployment of storage solutions which are still new to the country.
Enhanced integration of climate-related risks	MDB-supported investments will integrate measures to address climate-related risks and enhance climate resilience on project levels. Furthermore, some IP components, like distributed generation can help to diversify location risks and support system resilience.
Prevention of increased import dependency on fossil fuels	The programme will support the country's energy transition, and prevent increased reliance on electricity imports via RE and grid investments. While some role for gas is envisioned in the baseload for system stability it the transition period per national plans (e.g. NECP and Energy Strategy), these investments will not be covered by ACT programme. It is important to note that ambitious 82% net GHG emissions reduction is reflective of these plans. Furthermore, ACT's contribution to RE deployment, grid, and in particular, storage investments will directly support minimising the role of gas in the baseload.
3. Financial Effectiveness	
Value for money	The plan supports effective usage of grants and concessional finance, with a leverage ratio of 1 USD from CIF, to USD 475 million investments by MDBs. To this end, donor resources are focussed on non-commercial components, including power plant decommissioning, land repurposing, storage and grid investments, as well as support across 'people' and 'governance' pillars, particularly for the grant component.
Mobilization potential	Private sector mobilisation will be essential to implementing other components. For example, auctions are expected to attract private investors for RE deployment. The component 2 will also help to address barriers to regional economic regeneration in Southwest and Pelagonia, including infrastructure barriers in the industrial zones, and skills shortages via human capital development initiatives, focussing on coal value chain workers, women and other target groups. This is expected to catalyse climate-smart private sector investments in the region.

Implementation potential	The implementation will rely on successful cooperation between key stakeholders, led by the ME. This will build on the governance structure, outlined in the Just Transition Roadmap. In terms of concrete investments, ESM, MEPSO and EVN have been actively involved in the IP preparation and are in discussions with participating MDBs on concrete projects. IP implementation will also require close coordination with municipalities, vocational training providers, and development partners, who have been involved via stakeholder engagement, and are ready to support the processes. Lastly, EBRD and IFC are well-positioned to work on private sector investments, given their extensive experience, and network in the country, including with local PFIs.
4. Just Transition	
The IP builds on the Just Transition Roadmap. The Roadmap provides guidance on key socio-economic actions at regional and national levels, sets out governance structures, and serves a starting point for IP actions, particularly under the 'people' component. The aim of the JTR is to ensure that the benefits of green economy transition are shared, while protecting people, regions, and communities from falling behind. These will be ensured through implementing the reskilling and redeployment initiatives for the affected workers, and new opportunities for the communities. The programme will also support development of green education policies and regulatory frameworks, to ensure that local educational institutions provide affected workers with required skills to find decent employment. This includes, but is not limited to, greening existing occupational standards, profiles and curricula and developing and accrediting new occupational standards based on labour market and skills demand forecasting and strengthening institutional capacity of local TVET Centres in Bitola and Kichevo to facilitate implementation of required change brought by green transition, in close coordination with industry, including strengthening governance, updating existing and developing new green and digital skills programs, and re-skilling of teachers.	
5. Gender Equality and Social Inclusion	
The Programme recognises the importance of supporting investments in the affected regions that can create better local employment opportunities for women, as well as the need to integrate a gender lens into regional planning processes, especially when North Macedonia has low parity in economic participation and opportunities for women.138 Thus, the programme supports women's increased participation in the labour market through creating opportunities for women and girls in green and digital occupations, that have not yet been stereotyped along the gender line. The programme recognises that engagement of women would be critical in enabling them to gain access to the sector, that was previously largely closed to them. The programme will also focus on supporting companies in promoting women's skills and employment opportunities and ensuring that they have access to green and digital skills and jobs, through employing higher standards of gender equality across their operations, including by implementing internship, mentorship, and other structured leaning programs for women.	
6. Development Impact Potential	
Economic, social, and environmental impacts	The programme components will have minimal negative environmental impacts. Instead, they will support local air pollution reduction (c. 113,823 tonnes of SOx and 4,202 tonnes of dust/annum), helping to reduce public health risks for local communities. Power plant and mine land remediation will also help to prevent soil and water contamination. Lastly, the human capital development interventions will support affected workers and communities by creating of new economic opportunities (e.g. via enabling improved access to green skills and jobs e).
Markets of system impacts	The programme will address market barriers to investments, as outlined in the 'risks' section. Some examples include auctions with creditworthy offtaker, skills development programmes, ensuring energy security via grid and storage investments, and supporting green transition of local companies by providing access to finance for climate-smart investments.

138 World Economic Forum, 2023, Global Gender Gap Report

Annex 2. Assessment of the country's absorptive capacity

1. For the purposes of the IP, absorptive capacity criteria include demand for ACT activities, macroeconomic and political stability during implementation, private sector mobilisation potential, as well as power system's absorption capacity. Based on these criteria, no material challenges with unmitigated risks to utilising ACT concessional financing are identified.

2. **Demand for ACT resources:** The investment costs needed to enable energy transition are estimated at over EUR 3 billion by 2030.[139] These comprise of: (1) coal phase out activities, including power plant decommissioning and mine remediation, (2) renewable energy investments, (3) grid and storage upgrades, (4) just transition for coal reliant communities, and (5) institutional support and capacity building. Over 60% of the costs are associated with renewables, and will be deployed primarily via private sector, and up to 20% - for grid and storage upgrades nationally. CIF's ACT concessional funding of USD 85 million, and c. USD 475 million co-financing by MDBs, will be critical in supporting coal phase out, just transition, and governance activities, as well as limited site-specific RE-repowering activities, needed to catalyse transition across the country.

3. **Macroeconomic stability:** The real GDP growth has reduced due to the pandemic and energy crisis, and reached 2.2% in 2022; however, it is expected to recover to 2.3% in 2023, according to the Ministry of Finance's projections. The public debt is high, and accounts for 55.8% of the country's GDP during the period January-September 2023. As such, where possible, IP places a focus on private sector mobilisation (e.g., for RE deployment and economic regeneration), as well as corporate lending to SOEs (e.g. MEPSO) to avoid a further strain on public budget. Furthermore, high level of concessionality is needed, particularly for sovereign debt, for such activities as coal phase-out.

4. **Political stability:** North Macedonia is a stable and democratic country, in the process of EU accession. The coal phase out and energy transition targets are inscribed in the country's key documents, including the NDC and NECP. As such, irrespective of political changes, the likelihood of the course's reversal is low. Just transition is also seen as a priority, with the recent adoption of the Just Transition Roadmap in June 2023, including the ongoing set-up of the governance structures.

5. **Private sector mobilisation potential:** The private sector in North Macedonia is catching up with investments in green technologies, visible through increased interest for financing of such projects by commercial and development banks.140 The Energy Regulatory Agency has also seen an influx of applications for licences for production of electricity from renewable energy sources: it issued 686 licences in the period January 2022 - September 2023 for 503

139 Ministry of Economy and EBRD internal calculations.

140 MARES Conference – Green Finance Panel with banks October 26 Skopje

MW of renewables installed capacity.141 Thus, the Government's partnership with MDBs is vital to the implementation of the ACT IP programme aiming to mobilise significant private sector investments. EBRD and IFC have a strong record in working with private sector of different size. For example, EBRD has provided direct financing and technical assistance to private agricultural, manufacturing and services companies; it has also supported smaller clients via the financing lines channelled via private financial institutions in the country. IFC has been working on supporting TIDZ Directorate in attracting larger investors into the country, which will be helpful for IP implementation.

6. **Power system absorption capacity:** The detailed modelling for the power systems transition has been undertaken in the NECP and Energy Strategy. The documents show the technical feasibility of the coal phase out by the end of the decade (outlined in the IP). MEPSO's recent study shows that, under certain conditions, only up to 1.3 GW of renewables could be integrated into the system without further investments in the grid. However, given the country's import dependence and challenges associated with intermittent renewables, it would be important to ensure minimal stable baseload (limited role for gas in the transition period), invest in storage solutions, and ancillary services, including for frequency and reactive power control. In terms of the transmission grid, significant investments will be required in new and reconstruction of existing substations and transmission lines in addition to brownfield investments for rehabilitation of existing substations in the power plants and mine sites, to enable RE absorption; same applies to the distribution grid, where EVN is already rejecting some RE applications, due to technical constraints. In parallel, reduction of electricity demand through energy efficiency measures is seen as a key priority, as it can reduce the strain on the system.

141 ERC Press release – 12.10.2023 Регулаторна комисија за енергетика, водни услуги и услуги за управување со комунален отпад на Република Северна Македонија (erc.org.mk)

Annex 3. Summary of Stakeholder Consultations

1. Given the CIF's country-driven approach, a comprehensive stakeholder engagement process was implemented during the IP design. The Government of North Macedonia was supported by the CIF's Multilateral Development Bank (MDB) partners, led by the European Bank for Reconstruction Development (EBRD), with World Bank (WB) and International Finance Corporation (IFC). On April 6, 2023, the MDBs held a kick-off call with the Ministry of Economy (ME) and the Ministry of Finance (MF) to (i) introduce the team, (ii) provide an overview of the program and timelines, (iii) answer questions on the expectations, process, and priorities, and (iv) discuss next steps including the scoping mission.

2. First scoping mission

During May 22-25, the State Secretary for Energy (SSE) of the Ministry of Economy (ME) of North Macedonia hosted a scoping mission comprising of MDBs – EBRD, WB, and IFC to discuss the preparation of the draft Investment Plan (IP). Several meetings were organized by ME between the MDBs and CIF ACT representative with key government stakeholders, private sector representatives, development partners, civil society organization representatives (CSOs), and State-Owned Enterprises (SOEs). During the scoping mission, the EBRD team and CIF ACT representative visited the TPP in Oslomej, PVPPs, and coal mine assets next to Kichevo.

The **key objectives** of the mission were to:

(i)Designate the national entity with a mandate to engage in relevant CIF programmatic areas and related functions;
(ii) Stocktake existing activities, documents, studies, and plans for the preparation of the IP (e.g. climate policy, electricity sector decarbonisation strategic documents and renewable energy plans, regional development plans, just transition roadmap, etc.);
(iii) Exchange views with key stakeholders, inform them of the program, and collect early inputs;
(iv) Identify priority areas for further work;
(v) Determine the scope of support under the Investment Plan Preparation Grants (IPPG of up to USD 0.5 million);
(vi) Agree on the timelines and next steps.

<u>Summary of key findings:</u>

Political level:

- The Government remains committed to the coal phase before 2030, in line with the strategic documents (NDC, draft NECP, Energy Strategy) to meet the 2030 82% net GHG emissions reduction target compared to the 1990 level, recently confirmed per Decision 2022/02/MC-EnC submitted to the Energy Community Secretariat;
- Given elections are coming up in the spring of 2024, the IP should be submitted to CIF in February 2024 at the latest. All stakeholders agreed to be proactive and contribute to this short deadline;

- ME will coordinate the drafting the ACT IP and communicating with the CIF for the North Macedonian Government, with close support from the EBRD as lead IFI, as well as IFC and World Bank.

Technical level:

- While there is an increased interest in PVPP investments that support energy transition, the need for balancing capacity in the transmission network also increases;
- There is no comprehensive assessment of how the coal mine assets and land can be best repurposed;
- While there is clear awareness and interest to develop and invest in storage infrastructure, including batteries, there is a lack of a clear idea of what is needed in terms of the legal basis, technology and needs to proceed in this direction;
- Crucial departing documents for the Investment Plan (IP) should be the Single Project Pipeline (SPP) of the country (for the public projects), the Just Transition Roadmap, and the measures of the NECP;
- So far, there are limited engagements to specifically address the social aspects of the ACT in the affected coal regions of Southwest and Pelagonia;
- There are no specific early retirement, upskilling, re-skilling initiatives (except for the Technical Cooperation support to ESM by EBRD) for people in the affected regions;
- MEPSO, ESM, and EVN are interested in contributing to the IP process with project ideas, data, and existing studies;
- CSOs emphasised the importance of engaging with local municipalities and other stakeholders, including CSOs and communities themselves, during the IP process;
- Private sector representatives are willing to be involved in the IP process, providing data, organising workshops and providing expertise, including through the Chamber of Commerce;
- The Energy Community representatives want to be involved in strategic planning part of the IP.

Between the two scoping missions, several stakeholder consultations took place to follow up in detail on the current and planned activities relevant to the IP drafting process, including with EIB, EU Delegation, Regional offices of the Economic Chamber of North Macedonia, Mineral Resources Department at the Ministry of Economy, USAID, KfW, Directorate for the Free Technological Zones (TIDZ), and Municipality of Bitola.

3. Joint mission

During **September 19-22,** the State Secretary for Energy (SSE) of the Ministry of Economy (ME) of North Macedonia hosted a joint mission comprising MDBs – EBRD, WB, and IFC to discuss the draft Investment Plan (IP). Several meetings were organized by ME between the MDBs and CIF ACT representatives with key government stakeholders, private sector representatives, development partners, civil society organization representatives (CSOs), and state-owned Enterprises (SOEs). During the joint mission, the EBRD team and CIF ACT representative visited the TPP in Bitola, current PVPPs, and remaining ESM land and assets.

1. The **key objectives** of the mission were to:

   (i) Present and discuss a draft version of the IP, including early investment concepts;
   (ii) Stocktake existing activities, documents, studies, and plans for the preparation of IP (e.g. climate policy, electricity sector decarbonisation, renewable energy plans, regional development plans, human capital development support, just transition governance, etc.);
   (iii) Exchange views with critical stakeholders, inform them of the programme and collect inputs
   (iv) Plan upcoming public consultation for the draft IP;
   (v) Discuss the possibility of presentation of the draft IP at COP28;
   (vi) Confirm the timeline for submission of the IP and next steps.

Summary of key findings:

Political level:

- The Government remains committed to the coal-phase before 2030, in line with the strategic documents (NDC, draft NECP, Energy Strategy) to meet the 2030 82% net GHG emissions reduction target compared to the 1990 level, recently confirmed per Decision 2022/02/MC-EnC submitted to the Energy Community Secretariat;
- Minister of Economy, Kreshnik Bekteshi confirmed high level support for the ACT IP process and readiness to support implementation by ME;
- The North Macedonian Government acknowledges the opportunity and importance of being selected as an ACT IP country and receiving concessional funding for the coal phase-out;
- Given elections are coming up in the spring of 2024, the IP is to be submitted to CIF by late December (2023) or early January 2024 to meet the Trust Fund Committee's (TFC) meeting dates and avoid delays in accessing concessional resources. All stakeholders agreed to be proactive and contribute to this short deadline, confirmed by the Minister of Economy;
- ME will continue coordinating the process of drafting the ACT IP and communicating with the CIF for the North Macedonian Government, with close support from the EBRD as lead IFI, as well as IFC and World Bank.
- ME will coordinate with EBRD to present the draft ACT IP at the upcoming COP28 in Dubai, aiming to mobilise additional funding for the just energy transition.

Technical level:

- Overall, stakeholders supported the presented components of the IP as a good basis for the development of the concrete IP pipeline.

  Governance

- It remains crucial that local communities and municipalities in the affected coal regions of Southwest and Pelagonia are informed about the process and engaged closely;
- ME will engage the capacity-building consultant as soon as possible to support IP communication among government institutions, local governments, CSOs, and other relevant stakeholders, as well as facilitate public consultations;
- European Union Delegation continues to support the establishment of the JT structure as per the Just Transition Roadmap, adopted by the Government in June 2023;
- The government working groups on reskilling, renewable energy sources and storage, and economic transition under the JT Council will be formed soon and can support the ACT IP consultation process;

Infrastructure

- The ACT IP draft public sector projects should be included in the Single Project Pipeline (SPP) of the country per the request of the Ministry of Economy;
- While there is an increased interest in renewables investments by both the public and private sectors that support the ACT programme's low carbon transition objectives, further grid investments are required to enable their connections and ensure a stable electricity supply;
- The ongoing LURA assessment of the three mine areas will be the first of its kind in North Macedonia, giving a comprehensive overview of how the coal mines lands and infrastructure assets in and around the coal-fired power plants can be best repurposed;
- There is a clear interest in developing and investing in energy storage infrastructure, including batteries - ME is finalising the legislation on battery storage;
- ESM, MEPSO, and EVN will continue to contribute to the IP process with project ideas, investment needs, data, and existing studies;

People

- IP needs to have a strong focus on economic diversification and skills programmes. Brain drain and skills shortages are key challenges for the two JT regions, with even energy companies lacking engineers. Stakeholders highlighted the need to give new opportunities to coal value chain workers, address skills shortages, and create employment for those not in the labour force. This includes active labour market policies, including with a focus on women;
- The CSOs re-emphasised the importance of implementing skills programs, engaging with local municipalities and other stakeholders, including CSOs and initiative groups, and affected communities (with a specific focus on disadvantaged groups) themselves during the IP process. Eko Svest offered to support public consultations in Bitola and Kichevo;
- Private sector representatives are willing to be engaged in the IP process, providing data and feedback on private sector needs, and are interested in accessing the funding;
- The Energy Community representatives will follow the IP from the compliance with EC commitments point of view;
- IPPG consultants will work intensively on providing data, analysis, and concept notes for the IP.

4. Stakeholder engagement at local level

1) Municipality of Bitola, September 21, 2023
2) Municipality of Kichevo, October 26, 2023
3) Pelagonia Development Region, October 27, 2023
4) Southwest Development Region, November 3, 2023

Stakeholder consultations on the ACT IP in Bitola with CSOs and business representatives took place on September 20th at the Municipal Council Hall – Bitola featuring over 30 attendees, after a meeting with the mayor and the municipality representatives. The IP process was presented together with the specific components, and the first feedback was received. Representatives from training providers mentioned the great need for businesses to prepare for the just transition by investing in a change management business model to become part of the new green supply chains. It was expressed that companies are no longer reluctant but slow to accept the necessity of these changes and need support. There is also a need to revise the curricula at the university level, available in the affected regions, given the deficit of engineers. A few ongoing projects relevant to the IP were mentioned, including a cross-border project with Greece on green jobs. It was noted that unfortunately, there is no active environmental organisation in Bitola. Not much is done with vulnerable groups, and no plans are in place for engaging them with the just transition. Business representatives were interested in learning when the funding will be available and how the financing will get to the companies.

The conclusions drawn from the stakeholder consultations with the Municipality of Kichevo and with the municipalities from Pelagonia and the Southwest regions regarding the investment plan for the accelerated transition from coal, exhibit a high degree of similarity concerning the context, objectives, and specific feedback received. The main objective of these consultations was to introduce the process of developing the investment framework for the municipalities affected by the coal phase out and to encourage them to contribute to the definition and structure of potential investments, actions, and interventions.

The Kichevo municipality, being one of the most significantly impacted areas, is currently concentrating its efforts on diversifying the economy. Their primary focus is on attracting new private investors to create ample employment opportunities for the local population, thereby mitigating or potentially eliminating economic losses from transition. To achieve this, they are keen on resolving existing ownership rights and enhancing the development of industrial zones. They consider it vital to receive support from the national authorities to implement relevant measures and incentives aimed at attracting foreign investors to both the Southwest and Pelagonia regions. Furthermore, they anticipate a review of the measures and incentives to encourage local/domestic companies to invest in these zones.

The municipalities in the Pelagonia region have expressed their keen interest in actively participating and contributing to the formulation of the investment framework. Several municipalities in this region have emphasised their focus on the two key areas. First, they are willing to explore the potential to construct storage facilities at the local and regional levels, with the aim of securing grant support for these facilities. Second, they see a possibility in distributed generation, including to establish small energy communities. These communities would take on the responsibility of developing renewable energy projects for both industrial purposes and households. Furthermore, the consensus among most municipalities is that the financial structure and available funding sources, ready to be mobilized, play a vital role in the successful implementation of these initiatives, as well as having the right resources and capacities to apply for such funds.

The main concern of the municipalities in the Southwest region evolves around finding alternatives for economic activity following the decommissioning of TPP Oslomej. The region is dedicated to identifying investments and projects that can enable a sustainable economic transition and provide stable employment opportunities for its residents. Some municipalities have stressed the necessity of having the right expertise and resources within the local government to support them in project development and the identification of financial resources for implementation.

5. Stakeholder engagement with CSOs, academia and trade unions (Irina)

6. Stakeholder engagement via JTR Working groups

7. Final stakeholder consultations

On 12 and 13 of December, public consultations will take where the draft IP will be presented to a broader set of stakeholders, including representatives from the North Macedonian Government, academia, private sector, CSOs, MDBs, EU delegation, international organisations, and other relevant stakeholders.

Annex 4. Project Concept Briefs

A.4.1. Project 1: Retiring coal assets and repowering with RE

A.4.1.1. Background

1. North Macedonia has set an ambitious NDC target of net 82% GHG emissions reduction by 2030 compared to 1990 levels. In 2022, 52% of the country's electricity (2.6 TWh) was supplied by coal-fired power plants.[142] Given the prevalent role of the electricity sector in North Macedonia's emissions, the NDC and the NECP see coal phase out as the key element in achieving the target. As such, decommissioning of the 125MW TPP Oslomej and 699MW TPP Bitola (3*233MW), emitting c. 2.7 million tonnes of CO2/annum[143] is expected to be a key contributor to meeting the country's decarbonisation target.

2. Closure of the power plants however would also have knock-on effects on upstream lignite mining activities in three mines, creating the needs for environmental remediation. This creates opportunities for land repurposing, including deployment of renewables on former open pit mines, building on the experience of ESM's first utility scale 10MW solar PV in Oslomej. In doing so, it is important to attract private sector investments to ensure more competitive process, and lower RE costs for the population. The coal capacity retirement should be synchronised with the commissioning of new renewable energy power plants and taking care of human capital development.

A.4.1.2. Project Objectives

3. The objectives of this project are fourfold: (a) contributing to the country's NDC target via substantial reduction of the energy sector emissions through full coal-phase out, (b) ensuring environmental remediation and effective land use of former coal mining lands, including for RE deployment, (c) accelerating transition and ensuring energy security through investments in grid strengthening, synchronous condensers and storage solutions in the affected regions to enable re-powering with renewables, (d) promoting access to alternative livelihoods for those affected by the transition process through reskilling and upskilling, to ensure just transition.

A.4.1.3. Proposed Approach

4. The project will combine three components to achieve the abovementioned objectives.

5. **Component A** supports powerplant retirement, mine remediation and repurposing. The former may include discontinuing the coal-fired power generation, disconnecting the assets from the system, demolition and blasting activities, and site remediation, unless viable repurposing alternatives are identified. The latter includes repurposing of post-mining lands and associated sites and assets for alternative uses, including with potential infrastructure investments (e.g. small, pumped hydro, solar parks, thermal storage, synchronous generator

119 Electricity generation - North Macedonia 2022 6.1.23.09_mk.pdf (stat.gov.mk)

143 Calculated using assumptions of 39% capacity factor from 2022, subcritical combustion heat rate: 9,950 Btu/kWh, and lignite emission factor: 101,000 kg of carbon dioxide per TJ.

and similar). This Component can support developing new business models for ESM and job creation focused on land remediation and repurposing. This component also contains the governance element covering the development of the powerplant decommissioning plans.

6. TPP Oslomej consists of one unit with a total installed capacity of 125 MW, commissioned in 1980.[144] It is located in the municipality of Kichevo in the Southwest region, 6 km from the city. This thermal power plant currently uses the last remaining quantities of coal from local lignite mine Oslomej - West (Basin Kichevo), coupled with lignite imports. Given the old age of the plant, a variety of options have been explored, including a full unit modernisation[145] with a 30-year life extension. These plans have eventually been revoked, with the enhanced NDC of North Macedonia[146] setting the phase-out date of 2021. However, due to the energy security crisis and increased import prices, the closure has been delayed, with the plant temporarily re-starting operations during winter months. As such, it is critical to simultaneously deploy a low carbon alternative to replace the electricity supply from TPP Oslomej to ensure energy security, as well as provide support for decommissioning and environmental remediation. As part of the remediation and repurposing, 120 MW PV plants in total are already being constructed by ESM and private investor to replace the installed capacity of Oslomej TPP (Table 20).

Table 20 Coal-fired power plants (2022 data)[147]

Plants	Location	Capacity (MW)	Electricity generation (GWh)
Oslomej	Southwest	125	261
Bitola – 3 units	Pelagonia	699	2,328
Grand Total		764	2,589

7. REK Bitola is located in the municipality of Novaci, close to Bitola municipality in the Pelagonia region. It comprises of three 233 MW units, commissioned in 1982, 1984, 1988 respectively, responsible for the largest share of electricity generation in the country. Apart from CO_2, the three units emit on average 105,431 tonnes of SO_2, and 4,202 tonnes of dust per year.[148] This makes Bitola TPP one of the most polluting plants in the Western Balkans region and Europe, causing poor local air quality and negative public health effects for the local population.[149] As a Contracting Party to the Energy Community, and European Union accession country, North Macedonia has obliged to comply with Directives 2001/80 EC relating to the limitation of emission into the air from existing large combustion plants, and Directive 2010/75/EC on industrial emissions.[150] The country is already in breach of the Directives due to emissions from TPP Bitola. To comply, North Macedonia either needs to close the plant, or install emissions controls, with capex investment needs estimated at c. EUR 230 million and EUR 370 million respectively[151] for Directives compliance.[152] These capex investments would also extend the asset lifetime of the plant, creating a carbon lock-in risk, including for further delaying the current 2027 phase-out date set in the country's NDC and NECP. It would also create asset

144 TPP Oslomej https://www.esm.com.mk/?page_id=1866&lang=en

145 TPP Oslomej https://www.esm.com.mk/wp-content/uploads/2017/04/Modernization-of-TPP-Oslomej_2019.pdf

146 https://unfccc.int/sites/default/files/NDC/2022-06/Macedonian%20enhanced%20NDC%20%28002%29.pdf

147 ERC Annual Report 2022 https://www.erc.org.mk/odluki/2023.04.26_RKE%20GI%202022-FINAL%20ENG%20VERSION.pdf

148 Comply or close – Bankwatch June 2023 2023_06_28_Comply-or-close.pdf (bankwatch.org)

149 Comply or close – Bankwatch June 2023 2023_06_28_Comply-or-close.pdf (bankwatch.org)

150 Per Ministerial Council Decisions D/2013/05/MCEnC and D/2013/06/MC-EnC of the Energy Community on 24 October, 2013 respectively.

151 Per Ministerial Council Decisions D/2013/05/MCEnC and D/2013/06/MC-EnC of the Energy Community on 24 October, 2013 respectively.

https://www.energy-community.org/dam/jcr:8c8a919e-33c3-404c-aa20-510b429e530a/MK_NERP_042017.pdf

stranding risks. As such, early decommissioning support and environmental remediation are critical parts of the IP programme.

8. Based on the discussions with the ESM management and a power plant repurposing study undertaken as part of IPPG, the decommissioning and site repurposing is likely to be the most viable option for most of the units. However, IPPG highlighted several opportunities for site repurposing, using CIF ACT's ReACT tool.[153] These include a synchronous condenser as the most feasible option, thermal storage and pilot hydrogen electrolyser, the feasibility of which would need to be confirmed during technical due diligence. These devices provide improved voltage regulation and stability by continuously generating/absorbing adjustable reactive power; they also support frequency stability by providing synchronous inertia. Due diligence will determine whether it is better to re-use plant infrastructure, or consider a place on the TPP site, based on the condenser's model compatibility with TPP infrastructure.

9. In case the decommissioning is pursued, it could be financed either directly by ESM balance sheet lending, or on-lending against the state budget. To lower the cost of procuring external services, ESM could for example largely rely on its workforce, and where possible, equipment as part of the process, as well as generate small revenues (e.g., from selling scrap metal). For the rest of the financing needs, due to ESM's financial position, the project will likely include a state guarantee. However, given the country's constrained fiscal space, it would be essential to utilise concessional financing to lower the cost of borrowing and ensure that remediation is carried out to a high environmental standard, with the technical support from MDBs. To this end, decommissioning plans will need to be prepared within one year of setting the coal-phase out dates in the updated NECP and/or Energy Strategy, under the 'governance' pillar of the IP.

10. The phase out of the power plants will lead to a reduction in domestic demand for lignite, currently supplied by three ESM-owned open-pit mines: Oslomej, Suvodol and Brod-Gneotino (Table 21). This would require environmental remediation and effective land repurposing, starting with Oslomej and Suvodol mines, which are also reaching the exhaustion of the deposits.

Table 21 Coal mines to be remediated or repurposed (2022 data)

Plants	Location	Output in 2022 (t)
Oslomej	Southwest	155,232
Suvodol	Pelagonia	3,519,749
Brod-Gneotino	Pelagonia	858,671
Total		**4,533,652**

11. As part of the IPPG grant, World Bank has conducted a Land Use Repurposing Assessment (LURA) on the three mine sites, coal ash disposal sites in Oslomej and Bitola, and overburden lands owned by ESM, factoring in associated reclamation needs. It then produced a map of the area, depicting zones where specific repurposing options would be most likely to succeed, given the conditions and the community's needs. The outputs of assessment are presented in section 3.3 of the IP.

12. For the Oslomej mine, the remediation and land repurposing has already begun with 20 MW solar photovoltaic power plant financed by EBRD with ESM, and 100MW by Bulgarian and Turkish private investors via PPP tender supported by the EBRD.

153 React: a simplified guide to repurpose coal assets 2023 https://www.cif.org/knowledge-documents/react-simplified-guide-repurpose-coal-assets

13. In line with the Environmental Law from 2012, ESM has an obligation to ensure rehabilitation and remediation of degraded lands due to mining activities.[154] at the end of its mining concession. Based on the LURA assessment, up to 2,707 km2ha of available coal-mining lands could be most optimally repurposed for RE. Repurposing all this land to RE would cost c. EUR 68 million, based on the global average estimate of c. EUR 25,000/ha, to be confirmed during project due diligence. These costs include levelling, grading, drainage, compaction, erosion control, vegetation, access, grid connection, but not the actual RE installations. To minimise additional costs to ESM and/or the Government, land stabilisation and levelling costs for energy (or light industry) projects could be borne by developers, for example in exchange for lower land cost. If the projects are developed by ESM, repurposing costs can be lowered by using the company's workforce (thereby prolonging employment), and equipment, as in the case of 10 MW Oslomej-1 PV project.

14. In addition, around 8.3% of current mining land could become a permanent water body (lake). In particular, the upper reservoir at the Suvodol mine could be combined with the deep residual pit that will be formed after mine operations are completed to develop a closed loop pump storage power project (PHP). Further due diligence would be required to assess the elevation and water quantities after the IP approval, as part of extensive environmental assessments.

15. **Component B** is centred around - PROSPECT: Providing Renewable Opportunities through Solar and Education in Coal Territories. It focuses on repowering with solar PV, with human capital development programme for the affected workforce. Moreover, due to the high energy demand and limited availability of lignite deposits, TPPs rely in part on imported coal from Greece, Albania and Kosovo, further increasing the production cost of electricity and adding to the security of supply risk. Given the price volatility and increased regional electricity and fossil fuel costs, it is critical to prevent increased import reliance in the transition period, to protect vulnerable consumers and avoid exacerbation of energy poverty. As such, to enable coal plant retirement, it is important to prioritise rapid deployment of solar PV on coal mine sites, as well associated grid upgrades and storage solutions, before decommissioning the plants.

16. In terms of renewables development pipeline of ESM, in addition to the 40MW solar PV plants in Oslomej and Bitola, developed and financed by the EBRD, and 100 MW via PPP, it is expected that new 60 MW Bitola solar PV plant will be financed by KfW, and 100MW solar PV plant – by KfW and EBRD. These projects, with combined installed capacity of 300MW, are needed for decarbonisation of ESM and rapid renewables deployments to enable accelerated transition, while proving re-deployment opportunities for ESM workforce (outlined below), and in parallel - preparing for further deployment of private RE via auctions.

17. For subsequent RE projects, private sector mobilisation is critical to the deployment of new capacities, including on mine land sites, as it can ensure: (a) faster project implementation, lower investment costs and therefore more competitive electricity prices and lower energy costs for consumers and (b) reduced need for borrowing for ESM and the Government, so that public debt capacity can be deployed to other much needed social and infrastructure projects. Conservatively, an additional 300MW of private PV could be deployed on coal mine lands. For project finance, both debt and equity instruments could be provided by participating MDBs, where needed.

18. Given the lack of long-term private offtake options in the region, market experience from EU and other regions indicates that Contract-for-Differences (CfD) auctions could be the most

154 North Macedonia Environmental Performance Review – Third Review 2019 ECE.CEP_.186.Eng_.pdf (moepp.gov.mk)

viable and competitive solution to support developers of renewable projects, facing high upfront costs and long asset lifetimes through stabilising volatile wholesale prices, allowing access to finance, and to protect consumers from high and volatile electricity prices. EBRD is well-positioned to support the Government in the development of national auction scheme (most likely CfD), including the regional site window (300MW of private PV on mine sites), given extensive auction organisation experience in Western Balkans and broader Europe. No CIF concessional financing will be needed for private RE projects, outside of the grant for auction organisation under the 'governance' pillar of ACT in the amount of c. USD 1 million.

19. Development of these projects also provides improved skills and employment opportunities for coal value chain workers to be affected by decommissioning of coal power plants and coal mine closure, as well as other community members, while minimising the adverse social and economic risks and impacts. Currently, 3,433 ESM workers (2,878 permanent, 555 temporary), 155 are employed in power plants and mines, of which the majority (86%) are male.

20. As part of the EBRD's ongoing solar PV investments' package, since 2023, the Bank has been supporting the ESM in: (a) enhancing its capacity to actively contribute to the regional economic development planning process and the formulation and delivery of a strategy for the development of six nationally accredited market-relevant curricula for retraining affected local workforce; (b) the development of reskilling and redeployment initiatives; and (c) introducing gender inclusion measures to foster women's access to economic opportunities across all its operations. To compliment these efforts, the EBRD will also support ESM in building project management and electricity trading capacity through the development and implementation of two new certified training programs for at least 72 employees, of which at least 25% female.

21. Building on the experience of ongoing support to the ESM and the Just Transition Roadmap, the project under the IP will implement the overarching reskilling and redeployment initiative for affected workers. While the EBRD's, ongoing programming with ESM targets only 450 workers, there is a need to support the labour market integration of the rest of its at least 1,200 workers and around 2,000 workers from the supply chain, who are expected to be indirectly affected by the company's green energy transition. It is estimated that TPP Bitola's and TPP Oslomej's transition, including upstream mining impacts could affect up to 10,000 people if considering only the number of employees in the power plants and considering an average of 3 persons households (Table 22), without further interventions.

Table 22 Affected population by cities (Source: PwC ESM analysis 2023)[156]

City/ Village	Region	Population	Number of employees (permanent and temporary)	Affected family members)[157]	Total affected people as % of total population
Bitola	Pelagonia	85,164	1,981	5,943	7%
Novaci	Pelagonia	2,648	224	672	25%
Mogila	Pelagonia	5,283	134	402	8%
Demir Hisar	Pelagonia	7,260	93	279	4%
Krushevo	Pelagonia	8,385	32	96	1%
Kichevo	Southwest	39,669	797	2,391	6%

155 ESM latest data

156 This table considers only the number of employees in ESM and their immediate family; does not address the number of affected along the supply chain.

157 The number is calculated with consideration that an average household is consisted of 3 people and considering each employee is part of such house hold https://www.stat.gov.mk/publikacii/2022/Statistichki-atlas-mk-en-web.pdf

22. Thus, supporting affected workers in the process of upskilling and internal and external redeployment is critical. This will be done through the introduction of a series of high quality, nationally accredited retraining courses designed and implemented in partnership with local TVET and higher education institutions. This could include (i) nationally accredited reskilling vocational and high education programmes, in partnership with local academic institutions, (ii) upskilling in-company or modular short 6 months to 1-year courses, and (iii) dedicated programmes to increase engagement of women in technical and managerial positions, through employing higher standards of gender equality across operations, implementing internship, mentorship and other structured learning programs for female employees. In addition, the project will support development of green education policies and regulatory frameworks, to ensure that local educational institutions provide affected workers with required skills to obtain decent employment. This could include greening existing occupational standards, profiles and curricula, and development of new occupational standards based on labour market and skills demand forecasting, strengthening institutional capacity of local TVET Centres in Bitola and Kichevo to facilitate implementation of required change brought by green transition, in close coordination with the industry, including strengthening school governance, updating existing and developing new green and digital skills programs, and re-skilling teachers.

23. **Component C** is PowerHub: Grid Strengthening, Batteries, Training for Tomorrow. It focuses on the deployment of enabling infrastructure to support RE integration in the regions, including to provide improved access to skills and employment for affected communities. When enabling the transition to intermittent renewables, it will be important to deploy storage solutions and ensure grid flexibility, to provide stable electricity supply and minimise the role of gas in the baseload. To this end, up to 100MW of utility-scale batteries or alternative technologies could be deployed on power plant/mine sites. Given the novelty and lack of commercial viability of technology, this component will need a high level of concessional finance and grants.

24. It will be also critical to provide financing for grid upgrades, including transmission and distribution lines and substations to support the integration of renewables deployed on former mine and power plants sites as well as the wider Pelagonia and the Southwest regions. Clear justification and linkage to new site-specific RE deployment will be provided to CIF with each project. Early list of identified projects, in consultation with MEPSO, (subject to due diligence) includes adding a third 400kV transformer in the Bitola 2 substation, reconstructing 100 km transmission line Gostivar - Oslomej - Kichevo -Sopotnica - Bitola; upgrade of the 400kV interconnection with Greece (line Florina-Bitola); investments in high voltage equipment on the existing substations that use environmentally friendly insulation gas instead of SF6 and Bitola 1 substation rehabilitation. The list will be continuously updated during the IP implementation.

25. It is expected that projects under this component will be done primarily with the state-owned transmission system operator (MEPSO), with about 30% concessional loan, and remaining debt financing from MDBs. The level of concessionality is based on experience form past projects, and factors in novelty of technology and the impact lower impact on tariff, hence avoiding substantial increases of energy cost to the population. Where possible, corporate financing will be used to support a more sustainable financing model and reduce risks to the Government budget (when providing guarantee) and attain faster approval procedures and project implementation. Further investments with EVN, including to support absorption of distributed generation capacity, under IP's component 3, could also be covered under this component.

26. RE integration and transition to intermittent renewables requires skilled workers, including in planning, engineering, technical and operational professions. The TSO, MEPSO, is currently facing the lack of skilled engineers and technicians to support the energy transition. To address the skills shortage, the EBRD will support MEPSO in setting up a training centre in the Southwest region, thus using MEPSO existing facilities that can be repurposed for trainings. One of the core areas of support will be the development of curricula and professional standards for the relevant green occupations (to be defined at the skills mapping stage). This will include the preparation of learning guidelines for in-company training centre, including development of training programs for the centre to reflect relevant core skills for employability in the sector, in line with best practices and quality standards. This could be followed by technical planning support for the launch of the centre itself, and support in implementing newly developed trainings programs, including support in sourcing of first cohort, training of teachers for an initial cohort, etc. This centre would target not only affected workers (majority of whom are males) but will also create opportunities for women and girls in green occupations. Engagement of women would be of critical importance in enabling them to gain access to the sector, that previously saw low levels of women's participation.

A.4.1.4. Implementation Readiness

27. The decommissioning of the power plants will be implemented by ESM, with technical support from the relevant MDB (World Bank/EBRD), to ensure compliance with the best environmental and social standards. The timeline for retirement would be defined based on the robust modelling, including as part of the updated National Energy and Climate Plan, and the Energy Strategy. Decommissioning plans will be prepared within one year from NECP's and Energy Strategy update, and the process will commence no later than 2029 for all blocks, with some expected to be decommissioned earlier. Should the repurposing option be identified for TPP blocks, this would be supported by the MDB financing decommissioning, unless agreed otherwise. The planning will also be supported by the corporate decarbonisation plan for ESM, delivered by the EBRD in 2024, as part of an ongoing project, also including climate governance support to ESM in addressing climate risks and opportunities at the corporate level. ESM and local education providers are also increasingly willing to implement just transition elements of the projects, if provided with much needed institutional and capacity building support. CIF ACT's support will be critical in scaling up these programmes.

28. The decommissioning would be carefully sequenced with the deployment of renewables and associated grid upgrades. To ensure accelerated energy transition, the rapid deployment of renewable capacity could be supported via: (a) coal mine land remediation and, where relevant, repurposing delivered by ESM, based on Oslomej-1 project experience, and with the technical support of the World Bank; (b) c. 160 MW solar PV projects with ESM, financed by EBRD and KfW, and implemented over the next three years; (c) timely organisation of auctions (first - 2024) by the Government, with technical support from the EBRD. For the latter, both the Government and EBRD see substantial interest from the private sector in the renewables deployment, with current advanced merchant projects pipeline amounting to circa 500 MW.

29. MEPSO is well-positioned to deliver on the required grid upgrades to support renewables integration through: (1) its 10-year network development plan; (2) targeted grid upgrade study for Southwest and Pelagonia regions delivered as part of IPPG support; (3) internal capacity and experience for delivering on current projects. For storage, the relevant counterparty (public/private) will be identified during the IP implementation, as this would depend in part on the storage regulation provisions, currently under development by the Government, and expected to be finalised in 2024.

A.4.1.5. Rationale for CTF ACT Financing

30. The project's three components are at the heart of delivering on the energy transition in North Macedonia, and are well-aligned with the pillars of the CIF ACT programme, including: (a) infrastructure – mine closure, plant decommissioning, reclamation and repurposing, repowering with RE and storage and ancillary services; (b) people – contributing to implementation of social plans (including Just Transition Roadmap) and promoting access to alternative livelihoods for those affected by the transition process through reskilling and upskilling, and (c) governance via support in decommissioning plan development with ESM, and auction design to support the attraction private sector investments, as well as capacity building for local vocation training institutions.

31. CIF ACT grant and concessional finance support is needed under this component to address market barriers through a programmatic approach, tackling barriers outlined in Section 6.

32. The CTF ACT financing will help overcome first-mover costs, build confidence among local stakeholders and communities, and accelerate the participation of private developers and commercial lenders along the process.

A.4.1.6. Indicative Financing

33. The indicative costs for project components are listed below:

Table 23 Indicative breakdown of Project 1 components (USD million)

Investment Plan Components	MDBs	MDB share	CIF ACT	Private Sector	Gov/ SOE/ other	Total	Pillars		
							Infrastructure	People	Governance
PROJECT 1: RETIRING COAL ASSETS AND RE-POWERING WITH RE									
A: Powerplant retirement, mine remediation and mine repurposing	WB, EBRD	110	(c) 25 (g) 0.5		35	170.5	V		V
B: PROSPECT: Providing Renewable Opportunities through Solar and Education in Coal Territories	EBRD, IFC	230	(g) 1.8[158]	75		306.8	V	V	V
C: PowerHub: Grid Strengthening, Batteries, Training for Tomorrow	EBRD, IFC, WB	75	(c) 27 (g) 2.5	10		114.5	V	V	
Component Total		**415**	**(c) 52 (g) 4.8**	**85**	**35**	**591.8**			

A.4.1.7. Results Indicators

34. The decarbonisation of the electricity sector, including through TPP retirement, as well as mine remediation will have positive environmental impacts, including emissions reduction of c. 2.7 million tonnes of CO_2/annum, and over 100,000 tonnes of SO_2/year, substantially improving

158 All grant will be used solely for technical assistance for auction organisation, workforce re-skilling and labour market reforms support.

local air quality and reducing public health risks to the population. Activities of Component B and C will support reskilling of affected workforce and create alternative livelihood opportunities for coal value chain workers and affected population.

35. The final list of indicators will be available during the project preparation stage. Anticipated outcomes of the project include the following: Decommissioned coal-based power generation capacity (MW);
    a. GHG emissions reduction (metric tons/year);
    b. SOx emissions reduction (metric tons/year);
    c. Coal mine land area rehabilitated (ha) and re-purposed (ha);
    d. Deployment and integration of renewable generation capacity enabled (MW) via grid and storage investments;
    e. Renewable generation capacity constructed (MW);
    f. Governance action introduced (Y/N), including conducted renewables auctions; labour market reforms etc.;
    g. Decommissioning plans developed;
    h. Affected workers retrained/redeployed (percentage, female, male);
    i. Number of market-relevant re-skilling and upskilling training programmes in partnerships with TVET and universities launched;
    j. Financing mobilized, including from MDBs and other parties (broken down by public/private finance mobilisation).

A.4.1.8. Implementation timelines

36. The timeline for the project will be developed once approval is obtained for the proposed IP programme. The timeline for decommissioning of each unit will be defined in 2024, as part of NECP and Energy Strategy updates, via robust modelling to ensure careful planning for energy security. The auctions will be implemented in several rounds over 2024-2027. While reskilling and upskilling programs of affected workers will be implemented in line with decommissioning of each of the unit, the preparatory work, including at the policy level, will start once approval is obtained for the proposed IP program.

A.4.2 Project 2: Socio-economic Regeneration of Pelagonia and Southwest region

A.4.2.1. Background

1. The Southwest and Pelagonia regions are reliant on coal value chains for income generation. Circa 3% of the active workforce is involved in coal value chains, with circa 3,000 direct and 2,000 indirect jobs, including in mining, energy, mechanical and electrical engineering, metal fabrication, manufacturing and trade of machinery and electrical equipment, construction, transportation, technical gases, catering, professional services and others. Both regions have diverse, yet labour-intensive industry structures across manufacturing, services and agribusiness industries, with most common sixteen codes[159] covering 1,822 companies. The

159 Most common codes include crops production, animal husbandry, mixed farming, food & beverages industry, textile industry, plastics, foundry, metal fabrication, HVAC (heaters, ventilation, air conditioners, dehumidifiers fans), machinery, electrical, domestic appliances, automotive industry, furniture, trade, other industries.

unemployment rate in the Southwest region is 21% of active labour force, compared 12% in Pelagonia in 2021. The country's energy transition is likely to disproportionately affect both regions. As such it is important to ensure that the transition is just and provides new quality opportunities for affected workers and coal-reliant communities.

2. Pelagonia and the Southwest regions attract MNEs located primarily in the Technical Industrial Development Zones (TIDZs), with recorded revenues of EUR 1.3 billion in 2022 (17% growth compared to 2021), and net earnings of c. 47 million in 2022. According to the analysis of the IPPG consultants, the two regions also host 44 larger domestic enterprises (with average net earnings over EUR 0.25 million/annum). These employ circa 11,000 people. In addition, there are 209 smaller domestic companies with net earnings of EUR 30-250 thousand/annum. Both regions see growth opportunities in revitalising agricultural sector, supporting entrepreneurship, reskilling for the IT sector, and expanding the manufacturing sector.

3. However, the regions also face several inter-linked development impediments, including ageing population, labour-intensive economies, lack of skilled workforce and investments in high value-added industries. Both regions experience a decline in conventional agriculture and poorly developed road infrastructure. Regional manufacturing is predominantly conventional; while foreign direct investments are on the rise, they focus primarily on the labour-intensive industries. At the same time, prospective employers and investors see shortages of skilled labour force (e.g. in renewables industry). This is caused by a skills mismatch, including a lack of high-quality education and training opportunities in the higher value-added industries. The trend is further exacerbated by the perceived low attractiveness of the regions by young people, including due to poor air quality in coal-reliant municipalities and uncompetitive salaries, compared with Skopje and EU countries. This results in outmigration, and in turn perpetuates the cycle of low investor interest and lack of investments in high value-added industries in the regions, which could create new quality opportunities as part of the coal transition.

4. Given the regional development context and the transition's wider impact, the programme should support not only directly impacted ESM workers, but also create new opportunities for other target groups, including youth and women. These opportunities should primarily focus on future-proof green skills and energy efficiency competences to ensure that the benefits of the green economy transition are shared. This is of particular relevance for women, who are less represented in STEM fields, and can miss out on new value-added opportunities, without further support and interventions. Across the country, formal energy sector trainings do not adequately reflect the increasing demand for green skills. As such, the introduction of new accredited training programmes, informed by business needs, is key to the successful acceleration of energy transition. This may include the development of digital and energy efficiency skills that can help increase service efficiency through the adoption of new technologies.

5. The policy level should also address the absence of unified and market-oriented national mechanisms to qualify the green skills. This requires the introduction of the necessary regulatory frameworks for skills verification and certification of specialists, along with the

development a new curriculum for prospective certified specialists. According to the internal Employment Service Agency (ESA) data for the green jobs for the next 2-3 years on the national level, the main shortage of workers will be in the occupations shown below:

Table 24 Shortage of workers for the occupations needed for green transition

Occupation	Demand (workers)
Masons and related construction trades	1100
Glaziers	1000
Carpenters and construction carpenters	550
Facades and plasterers	500
Heating and air conditioning installer, master	500
Electrical fitter	500
Insulation Workers	400
Thermoisolator	400
Electrical technician for installation and equipment	400
Heating and Air Conditioning Installers	400
General construction workers	300
Tinsmith master	300

Occupation	Demand (workers)
Electricians in buildings and similar occupations	300
Electrical mechanics and electricians	300
Electromechanic for power engineering	300
Electromechanic for power engineering, specialised	300
Construction workers for facilities, part-skilled persons and assistants	200
Electrical fitter of energy machines and devices	200
Installer of electrical machinery and equipment	200
Electrical apparatus and equipment maintainer	150
Stone cutter, stone carver and engraver	100
Roofers	100
Electromechanic	100

6. Regional economic diversification, with the focus on human capital development, is critical to ensuring just transition for coal value chain employees and coal-reliant communities. Firstly, it is important to attract climate-smart investments into the regions to ensure creation of sustainable economic opportunities, compatible with the country's green transition. To this end, the programme should actively engage with private sector companies to understand and address their barriers to investments in the regions, including from human capital perspective. The programme should also support companies in promoting women's skills and employment opportunities through employing higher standards of gender equality across operations, including through implementing internship, mentorship, and other structured learning programs for women to nurture their talent and improve green skills. It should also support existing carbon-intensive local businesses, especially SMEs and micro-enterprises, in transitioning to more low-carbon models, and existing local climate-smart businesses in sustainable scale-up of their operations to create new economic opportunities.

A.4.2.2. Project Objectives

7. The overarching goals of this project are to: (a) support existing companies in the region in green transition and expansion, to provide sustainable employment opportunities in green and climate-smart business segments, (b) support broader human capital development in the

region via upskilling and re-skilling of the workforce, as well as measures to support women's and youth's integration into the labour market; (c) attract new climate-smart investments into Southwest and Pelagonia regions to support economic regeneration (e.g. smart agriculture, batteries etc.) including though improving local infrastructure. The following sections elaborate on the proposed implementation approach, key investments and implementation considerations related to the proposed initiatives.

A.4.2.3. Proposed Approach

8. To achieve the objectives, the programme needs to target:
   a) Availability of finance tailored to the specific development, growth and human capital needs of diverse stakeholders involved in the just transition process;
   b) Availability of industrial development zones with necessary and adequate infrastructure and support services to attract new investors, in line with state aid rules;
   c) Attraction of large climate-smart investments in businesses in Southwest and Pelagonia regions, coupled with human capital development.

   The proposed approach consists of the following three investment components:

9. **Component A's "Green & Growth (G&G)" programme** will focus on channelling finance via local partner financial institutions (PFIs) to the Southwest and Pelagonia regions. The G&G programme would have two windows: (1) green - to support regional SMEs' low carbon transition via energy efficiency and renewable energy investments; and (2) growth – to support regional business growth and human capital development via capex investments. Thus, the product will support the development of labour market relevant training programs and opening employment opportunities for former coal value chain employees as well as the broader local population, including women and youth living in the affected regions. To this end, individuals and young businesses will receive advisory support related to starting and growing a business and be equipped with tools for cross-stakeholder collaboration, via Advisory for Small Business (ASB) Programme.

10. The G&G facility will build on the EBRD's successful experience of the completed SME Competitiveness Support Programme (CSP). To date, around EUR 50 million have been extended to over 200 small businesses in North Macedonia, with incentives from the EU covering up to 15% of the total loan amount in grants. The eligible investments included improvements in product quality, health & safety at work and environmental protection. However, only 30% of the participating SMEs under the CSP were from the Southwest and Pelagonia regions.

11. G&G's grant level could be increased from the current 10% (offered through the only currently available corporate grant-supported product in North Macedonia – the UNDP supported Green Finance Facility (GFF), which targets only RE&EE, to 15% of investments. Somewhat higher grant levels should provide stronger impetus for the much-needed investments and resource-intensive activities related to green and human capital improvements in the affected regions. G&G's grant intensity level would then be the same as for the expired CSP since that

level has proved to be sufficient to motivate the SMEs to invest. The grants to the final sub-borrowers would be paid upon successful investment completion.

12. **Component B - Revitalise** will support the development of industrial zones in the Southwest and Pelagonia regions to address barriers to attracting domestic and foreign investments in high value-added industries in line with state aid rules. It will also support municipalities in strengthening their planning capacities for zones' development and broader socio-economic planning.

13. Southwest and Pelagonia regions host three TIDZs - Prilep, Kichevo, and Struga. In 2022, companies in these zones generated a revenue of EUR 180 million (5.6% of national total) and employed 2,530 people[160] (17% of national total).[161] Based on this data, TIDZs in both regions are more labour intensive and less revenue-generating than the national average. IPPG consultants' analysis covering stakeholder engagement with the municipalities, TIDZ directorate and companies, highlighted that the three zones have sufficient infrastructure, but see local skills shortages as a key barrier to further attraction of large investors. Addressing this barrier could attract additional 5-10 investors for remaining 46,3 ha of land, providing employment to 1,000-2,000 employees (depending on the business activity). For example, an ABEE car battery company has recently announced[162] an intention to invest in TIDZ Kichevo, which could offer employment to up to 600 people. The skills training needs are addressed below.

14. While TIDZs have been helpful to attracting FDI to the country, there are increasing questions about the level of provided incentives and policies' sustainability, including the likelihood if companies to stay after the expiry of incentives. As such, the component intends to support workforce upskilling related to the TIDZ, and also further explore investments in municipal industrial zones (MIZs), per priorities of the municipalities. The MIZs mainly offer acquiring industrial plot for greenfield projects on auction with bidding procedure determined by the municipality with specified starting price[163] and the possibility of applying for financial support from the Government of North Macedonia under the Law for Financial Support of Investments.[164] The zones vary in offerings and features. Some of them are in remote and rural settlements and have high development capital cost (e.g., Prilep 2, Demir Hisar, Debreshte, Mogila), or limited remaining space (e.g. MIZ Slavej). Others have had success with attracting at least one investor (e.g., MIZ Opalenik and MIZ Makazi).

15. There are both existing, brownfield industrial zones in larger regional cities (Bitola, Prilep), and newly planned and developing industrial zones, for example Zabeni near Bitola, and ones in Novaci and Mogila municipalities. However, in terms of the development and investment potential, there are two distinct municipal industrial zones, i.e.:

160 Based on the data received from the Directorate of the TIDZ

161 Based on the data received from the Directorate of the TIDZ

162 One of the key decision-making factors for the ABEE company was the technical workforce becoming available from the REK Oslomej power plant layoff plan.

163 According to the Law on the Industrial and Eco zones, 2013. Many zones start selling price is 1 Euro per 1 m2.

164 Limited to manufacturing sector, while agribusiness, residential building construction and ICT sectors (unless R&D) excluded.

- MIZs with higher development and investment potential based on existing demand, and
- MIZs with lower development and investment potential, due to several inter-related causes such as largely or fully divested land plots, ownership status, and lack of demand due to low population density and rural character of the local economy, hence low prospects for economic project viability.

Preliminary analysis of the IPPG consultants, suggests that up to 8 zones could fit into the first category, requiring circa USD 14.5 million in infrastructure investments, including roads, water supply, wastewater collection and treatment, power supply, and other works. Detailed costs per zone will be identified during project preparation, including via engagement with municipalities, and support for their industrial zone development plan upgrades under the 'governance' pillar.

16. The Component will provide sovereign/sub-sovereign loans to support integrated, cost-effective, resource efficient and high-quality investments in the MIZs' infrastructure. These investments will be carefully designed to support the development of quality green infrastructure and ensure sustainable business model of operations with MDBs' support. The latter includes financial sustainability and focus on attracting climate smart businesses. It will integrate lessons learned from past investments (e.g., Žabeni zone currently has legal proceedings with circa 40 existing owners of land that have breached their contracts by not executing investments). The development of such zones would address investment barriers for larger companies and create favourable conditions for domestic and foreign climate-smart investments to ignite low carbon industrial activities that support economic regeneration and facilitate creation of sustainable jobs in the regions both directly (employment for local contractors to work on infrastructural upgrades), and indirectly – by enabling attraction of new businesses.

17. **Component C targets an economic regeneration programme to support the attraction of corporate climate-smart investments in businesses in Southwest and Pelagonia regions, coupled with human capital development.** This component will support direct financing to corporates by EBRD and IFC, including via debt, equity, or mezzanine instruments.

18. As part of the investments, the Programme will help companies to create gender-equal labour market opportunities and skills development for demanded green jobs. This will include, for example (a) developing and implementing initial training programs in renewable energy (RE) and energy efficiency (EE) to reflect relevant core skills for employability in the sector, mainly targeting young people (with a focus on young women and NEETS – Not in Employment, Education of Training), without any previous occupational skills or work experience, and (b) developing upskilling modular short courses, targeting workers either already employed or self-employed in the two regions and who want to acquire new green skills. At the policy level, support will include establishment of public-private partnership mechanisms (e.g. in the form of Sector Skills Councils), to enable private sector employers to inform the development of occupational and skills standards in line with industry needs. The programme will also support the companies in implementing dedicated programmes to increase engagement of women in technical and managerial positions, through employing higher standards of gender equality

across operations, implementing internship, mentorship, and other structured learning programs for women.

19. The component will target investments in climate smart activities and projects, defined in line with *MDBs Climate Mitigation Common Principles*:[165]
    - Negative- or very-low-emission activities, which result in negative, zero or very low GHG emissions and are fully consistent with the long-term temperature goal of the Paris Agreement;
    - Transitional activities, which are still part of GHG-emissive systems, but are important for and contribute to the transition towards a climate-neutral economy, e.g., energy efficiency improvement in manufacturing that directly or indirectly uses fossil fuels;
    - Enabling activities, which are instrumental in enabling other activities to make a substantial contribution to climate change mitigation, e.g., manufacturing of very-low-emission technologies.[166]

    The Component could also support climate adaptation investments, for example in climate-resilient agriculture.

20. The Component's concessionality will be used to incentivise investments in higher cost climate-smart technologies.

5.2.7. Indictive Financing

21. The indicative costs for project components are listed below:

Table 25 Indicative breakdown of Project 2 components (USD million)

Investment Plan Components	MDBs	MDB share	CIF ACT	Private Sector	Gov/ SOE/ other	Total	Pillars		
							Infrastructure	People	Governance
PROJECT 2: SOCIO-ECONOMIC REGENERATION OF PELAGONIA AND SOUTHWEST REGIONS									
A: Green & Growth programme for SMEs	EBRD	5.3	(c) 2.7 (g) 1.95			9.95	V	V	
B: Revitalise: industrial zones for economic regeneration	EBRD, WB	10	(c) 5.5 (g) 0.5			16	V	V	V
C: Climate-smart economic regeneration programme	EBRD, IFC	22	(c) 2.7 (g) 0.65			25.35		V	
IP Total		**37.3**	**(c) 10.9 (g) 3.1**			**51.3**			

165 https://www.eib.org/attachments/documents/mdb_idfc_mitigation_common_principles_en.pdf

166 The complete list of the climate mitigation or climate-smart activities and technologies are provided in the Annex 1 of consultant's work – List of climate mitigation activities by IPPG consultants. Some examples of the most important and relevant activities and resulting investment projects to the ACT Project in NM are:

Energy (renewable energy generation, energy storage, efficient energy distribution)

Energy and resource efficiency in manufacturing sector (brownfield and greenfield projects)

Energy efficiency and carbon sequestration in agriculture

Energy and resource efficiency in water supply and wastewater management projects

Energy efficiency in buildings (retrofit)

Solid waste management (waste segregation, material recovery and reuse, EE)

Usage of ICT solutions across all climate mitigation projects

Cross-sectoral activities (transition policy actions, technical assistance)

A.4.2.8. Implementation Readiness

22. Implementation of this component will require extensive involvement of local partner financial institutions, private sector, municipalities, zone management teams, education service providers, local communities, and the Government of North Macedonia. First, for the Green and Growth credit line, the programme will rely on the extensive network of PFIs, which EBRD cooperates with via other financial products. These PFIs have an outreach in the Southwest and Pelagonia regions, including good knowledge of local businesses. Second, for the municipal industrial zones, throughout IP preparation, MDBs and the Government have engaged with the municipalities, who are extensively involved in the planning processes. For example, in the case of Zabeni, Bitola municipality already has an established municipal team, responsible for the zone management, investment, service provision and maintenance. Third, for the economic regeneration programme, it is important to build both on the existing network of clients in the region (e.g., for EBRD – Cermat) and attract new climate-smart businesses via investor fora and roundtables, with the support of the Economic Chamber of Commerce. Across components, the capacity of municipalities must be strengthened to ensure timely permitting, support, and removal of administrative barriers for private sector investments, and strong coordination between municipalities and central Government relevant institutions – sectors to ensure complementarity and coherence.

A.4.2.9. Rationale for CIF ACT financing

23. The Southwest and Pelagonia coal-dependent regions are faced with several inter-locked development impediments: population decline and a rapidly ageing population, dependence on imported fossil fuels, and being locked-into labour-intensive products. Unemployment remains relatively high. Young people and women are more vulnerable to such conditions. Poor air quality and inadequacy of infrastructures are factors affecting the quality of life. The above-mentioned factors make the regions less appealing, resulting in low fertility rates and outmigration. Without socio-economic interventions, coal transition can exacerbate regional trends including outmigration, unemployment, and lack of investments.

24. These regions are often seen as risky for prospective investors, due to overstated perceived transition challenges. The use of concessional resources blended with MDB and private capital can alter an investments' risk-return profile and improve investors' perception, helping high impact projects materialise. These projects can deliver an important demonstration effect for other project developers and financiers, who will in the future require less or no concessional support. The targeted use of blended concessional finance can transform projects that are not fully commercially viable into projects with a higher likelihood of full commercial viability in the long term, thereby helping to create new economic activity and support market development over time. Accordingly, the rationale behind the proposed CIF ACT financing is based on the following key requirements for the regional economic regeneration: (a) to attract a stream of foreign and domestic investors, targeting climate-smart oriented companies, into the region over the next 5 to 7-year horizon; and (b) to create improved access to skills and employment.

A.4.2.10. Results Indicators

25. The final list of indicators will be available during the project preparation stage. Anticipated outcomes of the project include the following:
    a. Improved capacity of municipal governments to implement relevant just transition strategies;
    b. Number of climate-smart investors attracted into the industrial zones and broader regions;
    c. Financial performance of the newly attracted investors;
    d. Number of local companies supported in green investments;
    e. Number of people upskilled/re-skilled (incl. former coal value chain employees, women, youth etc);
    f. Enhanced collaboration/partnerships between local communities, private sector, civil society, and provincial/local governments on the transition process.

A.4.2.11. Timeline

26. The timeline for the project will be developed once approval is obtained for the proposed IP program. It is expected that support for industrial zones could be implemented within 2-4 years, on-lending via Green & Growth credit line to begin in 2025 and finish in about three years, and first investments under the economic regeneration programme to occur over 2024-2029.

A.4.3. Project 3: Energy Efficiency, Distributed Generation and Clean Heating Programmes

A.4.3.1. Background

1. Energy efficiency, distributed generation and clean heating programmes are an indispensable part of North Macedonia's energy transition. Energy efficiency plays a key role in the electricity demand reduction, as well as reduction of energy costs. This is especially important for the most vulnerable groups, helping to reduce and avoid energy poverty. Distributed generation helps consumers contribute to the green energy transition, generate revenues, and facilitate energy security. Clean heating solutions serve a similar purpose, in addition to reducing air pollution, addressing health and safety risks. All the three components are also creators of green job opportunities, which can help to ensure just transition, security of energy supply and increase energy affordability for end users (with the focus on energy poverty), particularly for coal-reliant communities in Southwest and Pelagonia regions.

2. The Strategy for Energy Development of the Republic of North Macedonia until 2040,[167] defines both **energy efficiency** and decarbonisation as key priorities. The Strategy targets energy savings of up to 51.8% of primary and 27.5% of final energy consumption by 2040. North Macedonia's total energy consumption is comparatively low by EU standards. However, the country remains one of the most energy-intensive economies in the region and has a carbon intensity 38% higher than the EU average, due to the reliance on coal for electricity generation and underinvestment in energy efficiency across sectors. North Macedonia has

167 Energy Development Strategy

seen some positive trends over the past decade. For example, between 2010-2018, primary energy consumption decreased by 9% due to implemented energy efficiency measures and increased installation of green technologies (e.g. heat pumps, solar rooftop PV plants, solar thermal collectors, efficient biomass stoves etc.). According to the second National Energy Efficiency Action Plan, buildings consume circa 39% of the domestic energy, and have a potential to achieve circa 20-40% energy savings via energy efficiency investments. This reduction to energy demand will play a critical role in the transition of electricity sector away from coal.

3. The opportunities for energy demand reduction, particularly in buildings remain underutilised. For example, according to the EBRD's market study of the Western Balkans region conducted in cooperation with the Energy Community Secretariat (EnCS), the average level of penetration of green technologies in North Macedonia is below 9%. The uptake limitations are driven by market barriers, including energy pricing structure, access to financing, knowledge and understanding of available resources, limited data and low comfort levels, misaligned incentives, regulatory barriers, and lack of technical capacity.

4. At the local level, municipalities are actively developing programmes for energy efficiency in public buildings and Local Environmental Action Plans (LEAPs). World Bank is currently implementing a EUR 25 million Public Sector Energy Efficiency Project (PSEEP) supporting energy efficiency investments in public facilities. The project includes energy efficiency investments in the healthcare buildings managed by the Ministry of Health as well as buildings and street lighting owned by municipalities. Furthermore, this project supports the establishment and operationalisation of the Energy Efficiency Fund (EE Fund) as a sustainable and revolving financing mechanism to scale up energy efficiency investments in municipal facilities, together with the Macedonian Development Bank. Under PSEEP, there is a EUR 5 million component to support the first EE Fund investments in municipal projects once the Fund is established and operationalized. Thus far, the project has received applications from Kichevo municipality, but no applications from Bitola.

5. **Distributed generation** involves generating electricity or heating at or near where it will be used (for example, via rooftop solar panels). It can be used to power a single structure, such as a home or business, or be part of a microgrid. This can enable local consumers to directly participate in energy transition, while generating revenues, for example with feed-in-tariff incentives (similar to the current incentives offered by the Energy and Water Services Regulatory Commission). Distributed generation is also more labor-intensive and creates cleaner job opportunities compared to, for example, large-scale PV projects.

6. In the Southwest and Pelagonia regions, electricity, and solid biomass (wood) are the most used heating sources.[168] Combustion of solid fuels in Bitola and Kichevo contributes to the municipalities having some of the highest concentrations of PM (dust) in the air in the country. As such, **cleaner and more efficient heating** options not only contribute to decarbonisation, but also improve public health in the affected communities. Centralised (as a part of district

168 Analysis of alternatives to coal-based district heating for the Bitola region in North Macedonia 2022, Eko-Svest https://makstat.stat.gov.mk and Analysis-of-alternatives-to-coal-based-district-heating-for-the-Bitola-region-in-North-Macedonia-2022.pdf (ekosvest.com.mk)

heating systems) and decentralised solutions for introduction of solar-thermal, geothermal, individual, or large heat pumps, biomass/biogas, and waste-to-energy plants could be considered among the options. To provide analytical support, World Bank is currently exploring a project to finance equipment for strengthening air quality measurement and monitoring network, analysis, modelling, and data dissemination including in the affected municipalities.

7. **Fostering green skills development for local workers is key to unlocking the job potential throughout the above-mentioned components.** As in other Western Balkan countries, in North Macedonia, formal trainings for energy professionals do not reflect the increasing demand for higher specialisations driven by the need for cleaner and smarter energy systems. The introduction of new accredited training programmes informed by business requirements is key to the successful roll-out of clean electrification plans.

A.4.3.2. Project objectives

The project has the following objectives: (a) to reduce electricity demand through retrofits, enabling accelerated coal phase out and lowering energy costs for the population, as well as GHG emissions, (b) to improve air quality in Bitola and Kichevo via clean heating investments, (c) to introduce new income generating opportunities for local communities via distributed generation, and (d) enable new job creation opportunities in energy efficiency and distributed generation in affected regions.

A.4.3.3. Proposed Approach

8. The Project is composed of the two interlinked components, closely coordinated by respective MDBs, targeting both public and residential sectors. In the residential sphere, it is targeting more commercial models with lower levels of concessionality where possible (e.g. for middle class consumers), and higher levels of concessionality (e.g. for vulnerable consumers and clean heating), where necessary. This will be carefully designed to not crowd out commercial financing.

9. **Component A: is ECOBOOST: Empowering Coal Communities with Efficient and Renewable Lending,** deployed by the EBRD**.** It could focus on providing: (a) concessional investments for energy efficiency, and distributed generation to households in coal-reliant regions via partner financial institutions, (b) supporting energy efficiency and distributed generation of public sector buildings (e.g. educational, administrative, and healthcare). This could be done via municipal lending (depending on the municipality's financial position and investment size).

10. **Component B** is **EcoCommune: Community-Centric Clean Energy Initiative**, deployed by the World Bank**.** This Component will work on towards the same objectives but will target less commercially viable investments with higher levels of concessionally. In particular, it will focus on a) clean heating, b) household energy efficiency and rooftop solar installations programme for vulnerable consumers, and c) public sector buildings. The latter could include channeling via the existing mechanism under the Ministry of Finance or the Energy Efficiency Fund. The Component may also explore the opportunity to support the development of energy communities.

11. The Components will help to reduce energy costs to the population, reduce energy demand and create new economic opportunities, including though jobs in EE retrofits and distributed RE, and though selling electricity from prosumers.

Public sector

12. The municipality of Bitola owns 80 public buildings and has prepared a Programme for Energy Efficiency for the period of 2024-2026. The plan for Kichevo municipality is under development. Bitola's programme targets circa EUR 1.5 million in investments for energy efficiency measures (improving the building envelope, including roofs and replacement of old inefficient windows and outside doors).

Table 26 Bitola – estimated EE Investment needs and savings (2024-2026)

Year	Estimated investments for EE measures (EUR)	Estimated savings in (kWh/annum)	Estimated savings (EUR/annum)
2024	509,831.89	277,247	39,035
2025	508,592.52	300,670	38,652
2026	510,203.25	196,795	24,796
Total	**1,528,627.66**	**774,712**	**102,483**

13. The public buildings in Bitola have a good potential for rooftop solar PV plants for electricity production. The produced electricity can be used for lighting, heating, and cooling of public buildings, as well as lighting systems for their own purposes. For example, IPPG consultants estimated[169] that in Bitola, public sector building provides circa 52,000 m^2 of technically feasible rooftop space. Assuming that half of it could be covered with rooftop solar, the space provides the opportunity to deploy up to 5 MW of solar PV, resulting in c. 6,600 MWh of electricity/year.[170] The capex is estimated at c. EUR 7 million. Kichevo has similar geographical characteristics to Bitola related to the annual solar radiation but with half the population and a smaller number of public buildings. Following a similar calculation logic, in Kichevo, up to 2.4 MW of solar PV could be deployed, with a generation of circa 3,300 MWh electricity/annum.

14. Overall, further analysis would need to be undertaken during the IP implementation to reflect Kichevo's Porgramme for Energy Efficiency. IPPG consultants estimate that up to USD 15 million could be deployed in the Southwest and Pelagonia regions to improve building envelopes for municipal buildings, install solar panels for preparation of hot water, and install photovoltaic power plants for own production of electricity. In addition, the programme can provide capacity building activities to implementing entities, and support preparation of energy audits.

15. The Project will also consider opportunities to decarbonise district heating, led by the World Bank. For example, a district heating system in Bitola could be further developed with ESM, which is already working on developing pipeline connections to supply households,

[169] Programme is approved by the Energy Agency of The Republic of North Macedonia, but still not officially adopted by the municipal council (usually done by the end of the year)
[170] Solar irradiation in Bitola - 1,591 KWh/m^2, in Kichevo - 1,450 KWh/m^2. For Bitola: a PV plant with an area of 2 m^2 and annual solar radiation for the region of 1,591 KWh/m^2 would produce 547 kWh per year. The cost for a PV plant of two square meters is estimated to be EUR 500 without an inverter.

commercial and public buildings in and around Bitola. The DH network will target large commercial and multifamily apartment buildings.

16. The decarbonisation alternatives can include solar district heating, with Bitola's solar irradiation of approximately 1,592 kWh/[1712].[172] Pelagonia region sees similar solar irradiation, but also has a high presence of underground waters, which may be a geothermal or heat pump source for district heating. Therefore, there is a possibility for the usage of geothermal water-to-water heat pumps for heating and cooling in individual houses and multiapartment buildings with well-known technical solutions. Another study on alternatives to the District Heating Systems of West Macedonia, the Case of Ptolemaida, suggested a combination of a thermal solar system, biomass boiler, CHP unit with Organic Rankine Cycle and high-temperature heat pumps.

Residential sector

17. There is a clear need to improve the energy efficiency of the residential buildings across the Southwest and Pelagonia regions, which are home to 380,976 residents.[173] Based on the survey, undertaken by IPPG consultants, most of the individual houses or multi-apartment buildings were constructed between 1970-1990, requiring substantial renovations and improvements. Currently, only circa 26% of residential buildings in the regions have energy efficient facades.[174]

18. Part of the improvements have been done in the past few years through the EBRD's GEFF program, which offers green financial products and services. This product has high uptake and is comprehensive in terms of the available technologies under the green technology selector. As such, it is considered as a key measure to boost the residential EE and RE investments in the region.

Table 27 Statistical Data for the Pelagonia and Southwest regions

Municipality	No. of Residences	No. of Residences with EE facade	Percentage of buildings with EE facade
Bitola	24,530	5,863	24%
Centar Zhupa	2,220	141	14%
Debar	4,854	1720	35%
Debrca	4,190	629	15%
Demir Hisar	4,414	875	20%
Dolneni	5,032	919	18%
Kichevo	16,715	7,656	46%
Krivogashtani	2,317	275	12%
Krushevo	3,419	985	29%
Makedonski Brod	3,748	214	6%
Mogila	2,604	143	5%

171 Programme for Energy Efficiency for the Municipality of Bitola, prepared by MACEF Skopje 2023.
172 Alternatives to the district heating in Western Macedonia: the case of Ptolemiada 2016 https://regionsbeyondcoal.eu/wp-content/uploads/2019/02/DISTRICT_HEATING_EN.pdf
173 IPPG EE consultants survey: Market Analysis on energy efficiency and clean heating opportunities for coal-reliant communities 2023
174 North Macedonia Census 2021
https://makstat.stat.gov.mk/PXWeb/pxweb/mk/MakStat/MakStat__Popisi__Popis2021__NaselenieVkupno__Stanovi/T3005P21.px/

Novaci	1,385	127	9%
Ohrid	16,788	4,223	25%
Plasnica	1,728	406	23%
Prilep	21,947	3,084	14%
Resen	7,509	1,220	16%
Struga	18,093	7,593	42%
Vevchani	899	316	16%
Total	142,392	36,389	

19. Increasing the residential buildings' energy efficiency is seen a priority for affected municipalities to reduce energy demand and lower energy costs for citizens, in particular vulnerable consumers. According to a sample survey with 593 respondents in the Pelagonia and Southwest regions, undertaken by the IPPG consultants, the most popular heating source is wood (59%), followed by electricity (40%), coal (4%) with the remaining 1% covered by heating oil.[175] Approximately half of survey respondents have implemented some basic energy efficiency measures, and circa a quarter – RE. Circa 65% of these investments have been financed via own resources.

20. More than 70% respondents stated that they would implement further EE and RE investments if they had further access to financing with a grant component. The measures of interest included improvement of the building envelope, installation of solar panels for sanitary hot water, followed by heat pumps, biomass boilers and rooftop PV plants. Despite the high interest, there is a limited uptake, particularly for more advanced measures, due to prohibitive costs. In addition to creditworthiness, the requirements of banks based on collateral for credit are a frequent obstacle for citizens to apply for existing credit lines. This is especially pronounced in multi-apartment (residential) buildings.

21. Some commercial banks,[176] offer the above-mentioned GEFF product with a grant component in the form of investment incentives of up to 20% of the loan amount.[177] Out of the total EUR 13.3 million GEFF sub-loans placed in these regions in the last five years, EUR 7.1m have been used for facades and insulation improvements in 636 homes. Despite a good track record, the funding available for the country as a whole (EUR 32 million) is not enough to satisfy the total needs, especially in Southwest and Pelagonia regions.

22. Another issue is that the incentive amount of the existing credit lines is also not always a sufficient motive to apply for the loans. Therefore, the citizens of these regions often decide to wait for municipal grants (often about 50% of the investment).[178] However, municipalities cover one measure during one calendar year, so the effect is small, and poses a strain on local budgets, which will also be increasingly affected by energy transition. The future uptake may also be negatively impacted by the effects of energy transition on household's incomes, without further interventions.

175 IPPG EE consultants survey: Market Analysis on energy efficiency and clean heating opportunities for coal-reliant communities 2023

176 Banks that offer this loan product are: Komercijalna Banka AD Skopje, Prokredit Banka AD Skopje, Sparkasse Banka AD Skopje and NLB Banka Skopje

177 Banks that offer this loan product are: Komercijalna Banka AD Skopje, Prokredit Banka AD Skopje, Sparkasse Banka AD Skopje and NLB Banka Skopje

178 https://www.bitola.gov.mk/javen-povik-efikasni-domovi/

23. Hence, to overcome these issues and secure more meaningful effects to the coal-reliant communities, it is necessary to provide credit lines supported with somewhat higher grants compared to GEFF, that would be available only for these two regions. In this manner, the measure would also reach households in Southwest and Pelagonia regions that were prevented from participating in other subsidy programmes due to the required levels of co-investment of own resources (that exceeded their purchasing power). Furthermore, this would reduce the amount of energy vulnerable population in the regions by lowering energy consumption, thus, helping to strengthen societal buy-in for energy transition.

24. For the remaining vulnerable consumers, World Bank will explore options with a significantly higher level of grant intensity, to ensure affordability, both for energy efficiency and rooftop solar. As per Just Transition Roadmap, this could cover circa 32,485 of the lower-income quarter of the areas' households.

25. Financing for green residential technologies also opens opportunities for households to become prosumers and sell surplus generated energy (e.g. from rooftop PVs or small wind turbines) via the distribution network. These opportunities could be aggregated in the future via energy communities.

26. In terms of individual clean heating options, a World Bank study in 2021 on sustainable heating in North Macedonia concluded that the least cost heating options, including externality costs, are air-to-air heat pumps and eco-design biomass stoves and boilers, which could be supported under the Project.

27. Apart from the reduction of energy demand, the programme also supports the 'people' component of the ACT IP programme. Firstly, the reduction of energy demand supports energy affordability, by reducing electricity bills for local communities, and strengthening their capability to procure better comfort at lower specific costs. This is especially important for c. 30,000 lower-income households in the region, that would be able to spend lower share of disposable income for the consumption of energy services, leaving them sufficient resources for decent and healthy living standards, upon the implementation of the measures.[179] Secondly, the Component will generate a stable pipeline of energy efficiency and distributed electricity projects in the regions, creating increased demand for ESCOs, who would be encouraged to set-up local presence, associated with permanent jobs, providing new opportunities for local communities. Third, programme offering will reduce the need for grant-intensive programmes from municipalities (e.g., referenced in para 19), allowing to free up local budgets for other social needs to support just transition. Lastly, distributed generation provides a direct opportunity for local communities to participate in low carbon transition as prosumers and gain revenues from the process.

A.4.3.3. Implementation Readiness

28. The energy efficiency activities can be facilitated by the Ministry of Finance, Energy Efficiency Fund and the Ministry of Economy, including Agency for Energy, as a part of the Ministry of

179 Just Transition Roadmap, 2023.

Economy, which supports the implementation of the national energy policy by undertaking various activities such as fostering the introduction of energy efficiency measures, and creating an environment to increase usage of renewable energy sources for electricity production. At the local level, Bitola municipality has already developed a Programme for Energy Efficiency for the period of 2024-2026. Investment in public buildings, owned by the municipalities, will depend on a) the financial condition of the municipality, b) the readiness of the Ministry of Finance to approve and support those investments according to the municipal balance sheets and c) the capability of the municipalities to develop project proposals and to implement projects.

29. The financing for households will be supported via partner financial institutions, to improve the outreach and support private sector IP component. The financial sector in North Macedonia is at a satisfactory level. Together with the Development Bank of North Macedonia, there are 13 commercial banks and two savings houses.[180] Almost all banks have their branches and significant presence in the Southwest (e.g. 7 banks in Kichevo) and Pelagonia (e.g. all banks in Bitola) regions.[18] Furthermore, the grant-supported credit lines attract the interest of the local banks given the high demand from their customers and are seen as the best available instrument to motivate green investments. Hence, the local banks should be valuable partners in the distribution of the funds for the eligible investments in these regions.

30. Individual heating system replacement can be delivered through central and municipal level in a coordinated matter. At the central level, Ministry of Economy or Ministry of Environment and Physical Planning can coordinate the program from the central level, while municipalities or the newly proposed Energy Efficiency Fund would be responsible for implementation of providing targeted subsidies to households that are using inefficient or highly polluting heating systems. The Energy Regulatory Commission is responsible for setting the heating tariffs for the supply of heat to various consumers (residential, commercial, public etc.) During project preparation of the Air Quality project, to be supported by the World Bank, implementation arrangements will be determined on how to deliver subsidy schemes to households, particularly vulnerable consumers (energy poor), for the replacement of the old heating systems.

A.4.3.4. Rationale for CTF ACT Financing

31. Energy efficiency, distributed energy generation and clean heating are important parts of the Just Transition Roadmap for the two affected regions. These programmes will help to mitigate social impacts of energy transition on the local communities by reducing energy consumption and resulting bills, thus eradicating root causes of energy poverty. The programmes also create new economic opportunities in the regions, by creating a pipeline for energy efficiency and distributed generation projects, which will create new local jobs in construction and operations and management. Distributed generation also creates revenue-generating opportunities for affected communities and enables them to participate in energy transition, including potentially via energy cooperatives. Given the limited borrowing space of municipalities and consumers, which may be exacerbated by energy transition, grant and concessional finance will be critical to ensure uptake and delivery on outcomes.

180 Banks in North Macedonia https://www.nbrm.mk/banki.nspx

32. CIF support is needed to tackle market barriers faced by these technologies and interventions, necessary for advancing the low-carbon transition of the affected regions. Specifically, high 'green premiums' or upfront costs of energy efficiency investments and other decarbonisation technologies (clean heating, distributed generation) often prove prohibitive, especially when coupled with limitations in access to finance. The use of targeted incentive grants and concessional loans can help unlock long-term economic and climate benefits, while reducing costs and carbon emissions. Furthermore, by expanding the use of such technologies, further skills and jobs may be created in local economies, which helps tackle other market barriers such as the lack of involvement in the green supply chains and implementation track record, thereby improving the cost competitiveness of these low-carbon technologies.

A.4.3.4. Indicative Financing

33. The indicative costs for project components are listed below:

Table 28 Indicative breakdown of IP components (USD million)

Investment Plan Components	MDBs	MDB share	CIF ACT	Private Sector	Gov/ SOE/ other	Total	Pillars		
							Infrastructure	People	Governance
PROJECT 1: RETIRING COAL ASSETS AND RE-POWERING WITH RE									
PROJECT 3: ENERGY EFFICIENCY (EE), CLEAN HEATING, AND DISTRIBUTED GENERATION PROGRAM									
A: ECOBOOST: Empowering Coal Communities with Efficient and Renewable Lending	EBRD	8	(c)5.6			13.6	V	V	
B: EcoCommune: Community-Centric Clean Energy Initiative	WB	11	(c) 8 (g) 0.6			19.6	V	V	
IP Total*		**19**	**(c) 13.6 (g) 0.6**			**33.25**			

A.4.3.5. Results Indicators

34. Possible outcome indicators for the programme include:

a. Verified energy (electricity and heat) savings in kWh or GJ;
b. Verified reduction of GHG emissions related to energy (electricity and heat) savings in tCO_2e;
c. Number of residential buildings with improved energy consumption performance;
d. Number of prosumers;
e. Number of jobs created in energy efficiency and distributed electricity sectors (incl. by gender);
f. Reduced local air pollution (tonnes of PM, SO_x/annum);
g. Percentage of people under energy poverty line in both regions.

A.4.3.6. Timeline

35. The timeline for the project will be developed once approval for the proposed IP program is obtained. For the residential sector, envisioned timeline is 2024-2025, depending on the EBRD approval process for the overall Facility and the time of signing the respective loan agreements with the participating FIs.

Annex 5 IRF – Integrated Result Framework (Monitoring and evaluation framework)

ACT IMPACT ***Accelerate transition from coal-powered to clean energy while supporting socio-economic goals and environmental remediation***						
ACT Program Theory of Change: *If CIF addresses funding gaps related to the successful implementation of country-level strategies and associated kick-start projects; builds support at the local and regional levels to reconsider the development of new coal plants; and supports policy and investment activity in economic regeneration, social plans and income support for affected employees and communities, then national governments, public sector utilities and private sector operators will act to accelerate the retirement of existing coal assets and their replacement with new sources of renewable energy while ensuring a holistic, integrated, socially inclusive and gender equal just transition away from coal.*						
NORTH MACEDONIA* ACT INVESTMENT PLAN IMPACT** ***North Macedonia shifts from predominantly coal-powered into a renewable energy-driven economy in a socially just way that fosters economic opportunities for the people in coal-affected regions and attracts public and private climate-smart investments.						
***NORTH MACEDONIA* IP Theory of Change:** *If* North Macedonia takes a comprehensive approach, involving retiring coal-fired TPPs, investing in renewables, grid, and storage, promoting energy efficiency, clean heating, economic regeneration and just transition for affected workers and communities, guided by strong governance structures, *then* it can accelerate coal transition and reduce emissions and local air pollution, while ensuring energy security, fostering climate-smart and inclusive economic regeneration of the Southwest and Pelagonia regions with a skilled green workforce, and empowering local communities to participate in and benefit from green transition.						
MONITORING APPROACH						**EVALUATION AND LEARNING APPROACH**
RESULT STATEMENT	**INDICATORS**	**BASELINE (Date)**	**TARGET (Date)**	**MEANS OF VERIFICATION**	**NOTES**	**KEY AREAS**
***NORTH MACEDONIA* INVESTMENT PLAN-LEVEL IMPACTS**						
North Macedonia shifts from predominantly coal-powered into a renewable energy-driven economy in a socially just way that fosters economic opportunities for the people in coal-affected regions and	1. Share of energy from renewable sources gross final consumption of energy in North Macedonia energy systems (%) 2. Share of RE in gross electricity production 3. Share of young people (15-29) who are NEETs reduced.	1. 19% (2022) 2. 31% (2021)[181] 3. 24.5% (2019)[182]	1.38% (2030)[184] 2. 66% (2030)[185] 3. <20% (2027)[186] 4. <25% (2027)[187]	Ministry of Economy, State Statistical Office (SSO), ESM annual report	IP-level impacts focus on alignment with pre-existing NDCs, national development priorities, and available statistics at the Investment Plan and/or country level. *IP Plan as a whole will contribute to achieving national wide coal-replated targets*.	**Signals of transformational change:** Signals of transformational change at the program level might focus on more narrowly bounded aspects of energy systems transformation than in the section above (i.e., CIF-level impact). They might cover lower levels of systems transformation and be more closely tied to individual ACT Investments Plans and/or project-level impacts. Specific definitions and methodologies are TBD.

181 https://www.irena.org/-/media/Files/IRENA/Agency/Statistics/Statistical_Profiles/Europe/North-Macedonia_Europe_RE_SP.pdf?rev=af786ac719ac4e70af03a867dddfedd6

182 https://www.mtsp.gov.mk/content/pdf/2021/trud/strategija_vrabotuvanje_2021_eng.pdf

184 Energy Community targets https://www.energy-community.org/implementation/package/CEP.html

185 NECP

186 Employment Strategy North Macedonia 2021 https://www.mtsp.gov.mk/content/pdf/2021/trud/strategija_vrabotuvanje_2021_eng.pdf

187 Same.

attracts public and private climate-smart investments.	4. Vertical skills mismatch for 25–64-year-olds reduced	4.30% (2019)[183]				**Gender and just transition elements:** The program impact level allows space for further evaluations, assessments, and other approaches to take place as the program evolves in these areas. These activities may be tailored to specific recipient countries or applied more broadly across the program.

Monitoring Approach						Evaluation and Learning Approach
RESULT STATEMENT	**INDICATORS**	**BASELINE (Date)**	**TARGET (Date)**	**MEANS OF VERIFICATION**	**NOTES**	**KEY AREAS**
***NORTH MACEDONIA* INVESTMENT PLAN-LEVEL OUTCOMES**						
PILLAR 1: GOVERNANCE						
A. North Macedonia adopts and implements policies and strategies for coal-to-clean transition	**ACT CORE 1.** **Policies:** Number of policies, regulations, codes, or standards that have been amended or adopted (#) **1.1 Energy:** 1.1.1 Renewable energy auctions scheme developed and implemented (I auction conducted) **1.2 Just Transition (inc. gender)** 1.2.1. Functional JT Governance structure established[188] 1.2.2. Municipal plans for industrial zones	1.1.1. 0 (2023) 1.2.1. 0 (2023) 1.2.2. 0 (2023) 1.2.3. 0 (2023)	1.1. 1 (2025) 1.2.1. 1 (2024) 1.2.2. 2 (2026) 1.2.3. 2+ (2027)	Ministry of Economy, Municipal plans, MDB project data/country data	The National Energy and Climate Plan and Energy Strategy have already been adopted but will be updated in 2024. Just Transition roadmap has also been adopted in June 2023. As such, North Macedonia is advanced on the 'governance' pillar, and IP will only cover key gaps.[189] *IP Project 1, Component A* *IP Project 2, Component B, C*	Changes in policies, plans, and institutional capabilities may also be incorporated in **analyses of signals of transformational change**, which contribute toward the fundamental systems change described above. For example, specific policy analysis might help support the overall understanding of coherence across international and national policies (i.e., relevance) and linkages between national policy and institutional capacity (i.e., scale). **CIF's targeted evaluations and/or sector studies to fill strategic knowledge gaps:** Moving down the results chain, the monitoring function becomes increasingly important to capture program outcomes and outputs. Evaluation and learning function will complement core indicators by filling strategic evidence and knowledge gaps. Evaluation and learning activities will be selected based on overall stakeholder demand, evidence gaps, and cross-learning opportunities.

183 Same.

188 Just Transition Roadmap ; supported via IPPG capacity building pillar Just Transition Roadmap (economy.gov.mk)

167 Implications of the International Energy Agency Net Zero Emissions by 2050 Scenario for Net Zero Committed Financial Institutions https://www.smithschool.ox.ac.uk/sites/default/files/2022-03/Implications-of-the-International-Energy-Agency-Net-Zero.pdf

Just Transition Roadmap (economy.gov.mk)

	strengthened to attract investments 1.2.3. National or/and regional Skill/employment Strategies/action plans developed/upgraded					
	ACT CORE 2. Readiness. Coal transition strategies finalized (#) 2.1. Detailed decommissioning/repurposing plans for each TPP prepared	2.1. 0 (2023)	2.1. 2 (2025)	ESM, Ministry of Economy MDB project data	For both TPP Oslomej and TPP Bitola *IP Project 1, Component A*	
PILLAR 2: PEOPLE						
C. Sources of income created for affected employees through job retention or job creation	**ACT CORE 3** **Income security for employees of subset industries** Number of employees of retired coal plants/mines that have access to sustained income (#) 3.1. Number of directly affected workers redeployed (disaggregated by sex)	3.1. 0 (2023)	3.1. 1500 of ESM workers (disaggregated by sex, age, types of Job (2030)	MDB project financial data	The indicator targets the permanent staff (2,880 workers) of the ESM, excluding c. 800 workers expected to be retired by 2030. *IP Project 1, Component B* *IP Project 2, Component A, B, C*	**Quality and distribution of jobs:** Through both just transition and gender-responsive approaches, further evaluative and learning-oriented analyses may center on the types of jobs created (and lost), and which sub-populations are gaining (and losing) employment opportunities. For example, this might include generating evidence on decent jobs created and plans for addressing jobs lost through skills development and economic diversification activities. **Gender-responsive aspects** can be studied in more detail through targeted research, evaluations, and/or case studies. These will seek to understand the program's impacts in reducing gender imbalances and expanding inclusion, including interventions' relevance and access to the female labor force and the inclusion and viability of female owned enterprises in

D. Affected employees/communities equipped with relevant skills for jobs of the future	**ACT Core 4.** **Social Plans and Economic Regeneration Packages:** 4.1. Number of direct beneficiaries of implemented social plans and economic regeneration activities	4.1. 0 (2023)	4.1. 3,000, disaggregated by sex and age (2030)	MDB project data	The indicator targets the beneficiaries of reskilling /retraining programs *IP Project 1, Component B* *IP Project 2, Component A, B, C*	economic regeneration programs, driven by potential activities such as: a. <u>Coal plant or coal mine retirement/re-purposing phase:</u> Gender and social policy and strategy preparedness assessment; including mapping of: i) institutional linkages to Ministry of Women's Affairs or equivalent, gender focal points in line ministries (including in Social Protection and Labor, and Education ministries, as well as Environment, and Energy); ii) expected poverty impacts of the transition, including social and gender-based care burdens for workers affected directly and indirectly by the energy transition; and iii) policy mandates and measures to ensure gender equality outcomes in skill development and workforce transition. b. <u>Post-coal regional transformation phase:</u> Social protection assessment of readiness and completeness of short and long-term social assistance programs, active labor market programs, and education and reskilling programs targeting jobs of the future including gender assessments of gaps between women and men in education, skills, employment, and participation rates in new or similar jobs-related programs; and measures to reduce gender imbalances in impact of proposed interventions **Just transition-framed analyses:** • **Procedural Justice:** may examine the enhancement of social inclusion processes and procedures, such as stakeholder engagement at local and national levels, the extent to which vulnerable groups in impacted areas have been represented, gender inclusion, and the scope of social partners involved, i.e., government, labor, business, civil society, race. • **Distributional impacts:** may also be further examined along other evaluative lines or with additional focus on specific sub-populations, such as ethnic, religious, and racial minorities, female headed households, Indigenous People and local communities, migrants, youth, and persons with disabilities

PILLAR 3: INFRASTRUCTURE						
E. Reduce GHG emissions	**ACT CORE 5 (= CIF 1).** **5.1 Mitigation:** GHG absolute emissions savings million tons of CO2	[190]5.1. 0 (2023)	[191] c. 13.2 (2038)	ESM, Ministry of Economy, MDB project data	Annual emissions are calculated using assumptions of the *23.84% capacity factor for Oslomej and 41.59% for Bitola from 2022; *50y[192] average; operational coal plant age in Europe,[193] based on historical data and average pre-2030 retirement ages (tbc in updated NECP); *Subcritical combustion heat rate: 9,950 Btu/kWh, and lignite emission factor: 101,000 kg of carbon dioxide per TJ. *IP Project 1, Component B* *IP Project 3, Component A,B*	**MDBs are encouraged to undertake "whole of energy systems" analyses** as baselines during the Investment Plans and project appraisal process and to fully incorporate MEL aspects into such analyses. Integrated, systems-levels analyses can be used to build a theoretical model and reference scenario for how interventions will affect multiple results areas: renewable energy installation, coal retirement/abatement, l asset reclamation and reuse, landscapes restoration, etc. Both estimated and real operational data can also then be consolidated effectively to report across these multiple indicators.
F. Mobilize private sector financing	**ACT CORE 6 (= CIF 4).** **6.1. Co-Finance:** Volume of co-finance leveraged (USD)	6.1. 0(2023)	Total USD 560 million (2030) 6.1. MDBs USD 475 million Private sector USD 85 million	MDB project financial data	Total of non-CIF resources leveraged in ACT projects. Reporting on this indicator feeds directly into **CIF Impact 4 (Co-Finance)** *IP Project 1, Component B* *IP Project 2, Component A, B*	
G. Cleaner energy sources	**ACT CORE 7** **Plant decommissioning:** **7.1.** Capacity of existing coal power generation assets accelerated for retirement (MW)	7.1. 0 (2023)	7.1. 764 (2030)	ESM, Ministry of Economy	Existing capacity of coal-based generation that was retired ahead of life of asset due to replacement via operationalized NCRE capacity (i.e., solar and wind energy). *IP Project 1, Component A*	

192 https://www.smithschool.ox.ac.uk/sites/default/files/2022-03/Implications-of-the-International-Energy-Agency-Net-Zero.pdf

193 Continued operation of the plants would require significant capex investments to install pollution controls and comply with directives, which would extend lifetimes of the plants.

	ACT CORE 8 **Repowering** 8.1. Installed capacity of renewable energy (MW)	8.1. 946 MW (2022)	8.1. 1,346 MW (2030)	MDB project data	+300 MW private and 100 MW public on coal-mining lands; additional 700MW is expected to be dlivered via auctions under the 'governance' pillar nation-wide.	
	8.2 Energy storage capacity installed	8.2. 0 (2023)	8.2. 100MW (2030)		*IP Project 1, Component C*	
	ACT CORE 9 **Coal Abatement:** 9.1. Amount of coal diverted (MT)	9.1. 0 (2022)	9.1. 4,53 (2030)	MDB project data	Based on 2022 output from Oslomej, Subodol, Brod Gneotino mines *IP Project 1, Component A*	
	ACT CORE 10 **Plant closure, repurposing:** 10.1. Annual energy savings (GWh/yr)	10.1. 0 (2023)	10.1. TBD (2030)	MDB project data	A measure of increased energy efficiency as a result of ACT interventions that include energy savings objectives. *IP Project 1, Component A*	
H. Reclaim land and other infrastructure	**ACT CORE 11** **Mine closure, reclamation:** 11.1. Mine area reclaimed and reforested/ restored (Ha)	11.1. 0 (2023)	11.1. 2,707 (2030)	MDB project data	Based on IPPG LURA assessment *IP Project 1, Component A*	

Monitoring Approach						Evaluation and Learning Approach
RESULT STATEMENT	INDICATORS	BASELINE (Date)	TARGET (Date)	MEANS OF VERIFICATION	NOTES	KEY AREAS
NORTH MACEDONIA INVESTMENT PLAN-LEVEL CO-BENEFITS						
I. Social, Economic, and Environmental Development Co-Benefits	**CO-BENEFIT 1. Pollutants** **Atmospheric Pollution:** **1.1.** $PM_{2.5}$ savings (tonnes/annum) 1.2. SO2 savings (tonnes/annum) **Terrestrial Pollution:** 1.3 Reduction in volume of contaminants discharged **Health Benefits** 1.4. Value of avoided health costs due to reductions in pollutants (USD)	1.1. 0 (2023) 1.2. 0 (2023) 1.3.TBD (2023) 1.4.TBD (2023)	1.1. 4,202 (2030) 1.2. 113,823 (2030) 1.3.TBD (2030) 1.4.TBD (2030)	Ministry of Environment and Physical Planning, AirCare App, Global satellite data or related Project appraisal data National health data	*IP Project 1, Component A, B* *IP Project 3, Component A, B*	
	CO-BENEFIT 2. Just Transition: Social Inclusion and Distributional Impacts 2.1. Number and type of market relevant training Programmes developed 2.2. Number of Sectoral Skills platforms strengthened/ established 2.3. Number of new/updated National Occupational Skill Standards (NOSS) developed 2.4. Number of TVET institutions with increased institutional capacity 2.5. Number of SMEs, with the focus on job quality 2.6. Number of partnerships with educational institutions established to implement work-based or dual learning Programmes	2.1. 0(2023) 2.2. 0(2023) 2.3. 0(2023) 2.4. 0(2023) 2.5. 0(2023) 2.6. 0(2023)	2.1. 5+ (2030) 2.2. 1+ (2030) 2.3. 4+ (2030) 2.4. 3+ (2030) 2.5. 5+ (2030) 2.6. 5+ (2030)	MDB data, partners' reports, national statistics	*IP Project 1, Component 2* *IP Project 2, Component 3*	**Just transition-framed analyses:** • Procedural Justice: may examine the enhancement of social inclusion processes and procedures, such as stakeholder engagement at local and national levels, the extent to which vulnerable groups in impacted areas have been represented, gender inclusion, and the scope of social partners involved, i.e., government, labor, business, civil society, race, etc. • Distributional impacts: with focus on specific subpopulations, such as ethnic, religious, and racial minorities, female-headed households, indigenous people and local communities, migrants, youth, and persons with disabilities.

	CO-BENEFIT 3. Enhanced Energy Access National RISE Scores (ESMAP) National MTF rates (ESMAP) / SE4All Global Tracking Framework (GTF)	TBD	TBD	National statistics, macro-level indicators, World Bank and MDB country data	Indicators may measure increased, more affordable and/or more reliable access to clean energy *IP Project 1, Component A* *IP Project 3, Component A, B*	
	CO-BENEFIT 4. Gender- and vulnerable groups-specific co-benefits 4.1. Number of beneficiaries of gender-specific labor transition and skill development programs (at least 1000) 4.2. Number of companies developing internship/mentoring Programmes for women 4.3. Number of companies developing and implementing Gender Equality Action Plans and/or Equal Opportunities Action Plans	4.1. 0(2023) 4.2. 0(2023) 4.3. 0(2023)	4.1. 1000 + (2030) 4.2. 2+ (2030) 4.3. 2+ (2030)	MDB data	*IP Project 1, Component B*	

Annex 6. Existing activities in the field of just energy transition

Partner	Relevant Projects	Value	Status	Description
AFD	Energy Efficiency in Buildings (PEEB) Cool	USD 1.8 billion total project value	Preparatory works	The PEEB Cool focuses on 11 countries, including North Macedonia, and it is a project that will transform the construction sector by advancing more energy-efficient building design, construction, and operation. It will prioritise sub-sectors with significant potential for climate change adaptation and greenhouse gas reduction, such as large-scale new housing schemes and commercial buildings involving both the public and private sectors.
EBRD	GEFF	EUR 85 million	Under implementation	(GEFF) in the Western Balkans provides finance for green economy investments in the residential sector as well as to businesses that offer energy efficiency and renewable energy products and services to households. GEFF is implemented under the WBIF Regional Energy Efficiency Programme for the Western Balkans (REEP Plus). EBRD has also provided technical assistance to develop the energy-efficiency legal and regulatory framework, encouraging further investment in this area.
	ESM Energy Crisis Liquidity Support	EUR 100 million	Under implementation	Sovereign Guaranteed loan for JSC ESM ("ESM", "Borrower", or the "Company") to support the Company's liquidity needs during the energy crises affecting North Macedonia.
	ESM Solar PV Transition	EUR 25 million	Grant agreement to be signed	Provision of a senior loan to ESM for implementing a 30 MW solar photovoltaic ("PV") project consisting of (i) a 10MW "Oslomej" expansion (preconstruction phase) on the exhausted coal mine of TPP Oslomej, and (ii) a 20MW "Bitola" expansion adjacent to TPP Bitola (together the "Project"). The project will be co-financed by EU WBIF grant in the amount of EUR 5 million.
	ESM Solar Project - Photovoltaic plant	EUR 7 million	Completed	Provision of a long-term senior debt financing for constructing a 10MW PV plant, adjacent to the existing TPP Oslomej. The PV plant is built on the exhausted coal mine of the TPP Oslomej, and the electricity produced will be directly sold to the nearby grid. The project was co-financed by EU WBIF grant in the amount of EUR 1.5 million.
	MEPSO Rehabilitation and Control Project	EUR 25 million	Project idea	The EBRD is considering providing a senior corporate loan to MEPSO, the state-owned electricity transmission system operator in North Macedonia.
	Green Finance Facility - North Macedonia	USD 30.4 million	Under implementation	The establishment of the Green Finance Facility in North Macedonia (GFF) in favour of participating financial institutions (PFIs) established in North Macedonia for on-lending to SMEs for investments in renewable energy (RE) and energy efficiency (EE) following the GFF Policy Statement. The GFF was developed in partnership with the United Nations (UNDP), with contributions from the Joint SDG Fund and the Government of North Macedonia.
	RES Auctions Technical Assistance		Completed	The EBRD provided technical assistance to support the introduction of solar tenders – the first in the region to be developed with exposure to wholesale power prices – with a combined installed capacity of 162MW.

	Gas Interconnector and Gostivar-Kichevo and Sveti Nikole-Veles Sections	EUR 145 million	Preparatory works	Development of a hydrogen-ready national gas transmission lines, gas interconnection with Greece to diversify the gas supply and support the transition from coal. For the Greece Gas Interconnector Project, loan in the amount of EUR 28.9 million was secured from EIB and WBIF investment grant in the amount of EUR 12.3 million, with EIB as Lead IFI. For Gostivar-Kichevo and Sveti Nikole-Veles Sections, as well as for closing the financing for the gas interconnector with Greece , The EBRD is considering a loan in the amount of EUR 104.2 million
	Gas distribution		Preparatory works	The EBRD provides technical assistance to support the Ministry of Economy to prepare and implement a competitive tender for construction and operation of gas distribution network across the entire territory of North Macedonia.
	MEPSO	EUR 36 million	Planned	Provision of a long-term senior debt financing for the construction of 400kV interconnection with Albania, which will finalise the missing link of the power interconnection between Bulgaria, North Macedonia, Albania, Montenegro and Italy.
	MEPSO		Under implementation	The EBRD provides technical assistance to develop a Corporate Governance Action plan for MEPSO in line with the OECD guidelines.
	Private RES	EUR 200 million	Preparatory work	The EBRD is considering to finance multiple large-scale private PV and wind projects and is currently conducting due diligence for at least 250MW PV.
	MARES		Completed	Supported the establishment of the Macedonian Association of Renewable Energy Sources (MARES).
EIB	City Climate Finance Gap Fund	EUR 80 million (available globally)	Under implementation	City Climate Finance Gap Fund is a climate action trust fund that provides early-stage project preparation support to cities in developing countries.
	Floating PVPPs		Planned	Co-finance with the EBRD ESM's floating PVPPs projects. Potential co-financing from EU WBIF.
EUD	EU4Green	EUR 25 million	Under implementation	A regional EU project implemented by the Environment Agency Austria, financed by the European Commission. It aligns with the ambitious goals of the European Green Deal, adopted by the European Commission in December 2019, which envisions a resource-efficient and carbon-neutral Europe by 2050. By bolstering the Green Agenda's regional governance, the project seeks to support the Western Balkans in transitioning to a more sustainable and climate-resilient future, benefiting local and European markets.
	Just Transition Diagnostic and Roadmap		Completed	Development of the territorial Just transition diagnostic and roadmap (JTD) together with the EBRD.
	Supporting Energy Reforms IPA 2020	EUR 0.6	Under implementation	The specific objectives of this assignment are to support the country in the effective energy policy and ensure the strategic framework is in place, duly implemented and monitored; national legislation is aligned with the

				EU Energy *acquis*; and Institutional capacities for implementation and enforcement of the legislation strengthened.
	EU for Environmental Standards and Clean Air IPA 2021	EUR 22 million	Under implementation	This Action aims to decrease pollution-related environmental and human health risks. The action will support North Macedonia to align its environment and climate change legislation with the EU acquis and to ensure its implementation and enforcement. The action will also improve the air quality in large cities in North Macedonia by addressing the air pollution caused by heating and transport systems. Objectives/Outcomes: (1) Improved application of environmental legislation and standards in North Macedonia; (2) Improved air quality in large cities in North Macedonia (Skopje, Kumanovo, Tetovo, Bitola) Expected Results/Output: (1.1) Legislative framework better aligned with the EU acquis and institutional framework enforced; (1.2) Planning and technical documentation for building the integrated waste management system for Skopje region prepared; (1.3) Small pond of OHIS industrial site cleaned-up; (2.1) Pollution generated by the heating systems reduced; (2.2) Pollution generated by the public transport reduced; (2.3) Green belts created; (2.4) Preconditions for expansion of the central district heating in Skopje established. UNOPS, Skopje Office, implements the EU for Clean Air part (objective 2).
	EU for Prespa IPA 2021	EUR 18 million	In procurement	This Action will support the implementation of the Green Agenda for the Western Balkans in the transboundary Prespa Lake area, focusing on biodiversity and a toxic-free environment. It will also contribute to greening agriculture, local business and tourism and enhance cross-border cooperation. The UNDP local office will implement the Project. Objectives/Outcomes: (1) The ecological system in the Prespa lake area was preserved and improved; (2) Sustainable economic activities in the Prespa area were boosted; (3) Enhanced cross-border cooperation. Expected Results/Output: (1.1) Decreased pollution from human activities; (1.2) Natural resources preserved and protected; (2.1) Increased share of environmentally friendly agriculture; (2.2) Sustainable tourism products promoted and diversified; (3.1) Strengthened strategic vision on the development of Prespa Trans-boundary Area; (3.2) Established border crossing point with Greece.

	Implementation of Pilot Measures for Climate Change and Energy Efficiency in Public Buildings and Installations IPA 2020	EUR 4 million	Planned	Support the energy efficiency initiatives on local and central levels, including the Energy Efficiency Fund.
	EU for Green Economy IPA 2021	EUR 28.9 million	In procurement	This action will promote the sustainable economic development of North Macedonia, contribute to the implementation of the Green Agenda for the Western Balkans, and increase the number of green jobs and the size of the circular economy. The action will also enhance the competitiveness of the agricultural sector. The transition to a green economy will stimulate business development and help the country improve its rank in the Global Competitiveness Index. The grant component of this project will be implemented through the Fund for Innovation. Objectives/Outcomes: (1) Greened, recovered and modernised economy. Expected Results/Output: (1) Established Greening Business Facility; (2) Enhanced cooperation and position of farmers in the supply chain.
	EU for Economic Cohesion IPA 2024	EUR 20.6 million	Planned	In addition to supporting the economy, trade and agriculture, this Action is also addressing the climate change challenges on central and local levels by supporting structural reforms in energy and energy transition from fossil fuels towards clean energy in line with the Green Agenda for the Western Balkans. This involves aligning the national energy policy with the EU objectives and the undertaken international commitments; streamlining the institutional framework; enhancing the competencies of the authorities at the national, regional and local levels and building their capacities to implement measures in support of the green and just transition; upscaling the education and awareness on sustainable energy issues on the central and local level; and promoting the renewable energy and prosumers concept. The Action will also improve the analysis of the green energy transition and support future EU investments.
	Regional EU-WB6 Just Transition project	tbd	Planned	A regional/multi-country project that will support the efforts of the WB6 countries in just transition.
	Revision of the National Energy Strategy and NECP	Tbd	Planned	Revision of the MK long-term NES and NECP.
	WBIF EFSD+ grant funding through	EUR 510.10 million	In preparation or implementation	Western Balkans Regional Blending facilities and Guarantees with WBIF/EFSD+ Grant allocations, in addition to the IFI contributions, covering several EU/WB6 regional policy priorities:

	Different Guarantees and financial instruments			1. Green for Growth Fund – EUR 76 million- green transition 2. Regional Energy Efficiency Programme EUR 182.6 million – green transition 3. Green Finance for Inclusion – EUR 10 million - green transition 4. WB EDIF Guarantee 4 SME Resilience – EUR 60 million - financial inclusion 5. WB EDIF Guarantee Facility Youth – EUR 10 million- financial inclusion 6. European Fund for Southeast Europe – EUR 101.5 million - financial inclusion 7. Enterprise Expansion Fund (ENEF II) – EUR 30 - financial and financing diversification 8. Regional Competitiveness Programme – EUR 30 million - trade and value chain innovation 9. Advice for Small Business – EUR 15 million - multi thematic SME Go Green Programme – EUR 25 million - sustainable agriculture
FAO	Strengthening country capacities for climate change adaptation and mitigation and finalization of Country Work Programme for the Republic of North Macedonia	USD 663 245	Completed	Based on the progress achieved under the first Readiness grant, a Procedure for Tracking, Monitoring and Streamlining Public Climate Finance was drafted and piloted as a proposed mid-term solution until a national climate budget tagging is introduced. Capacities of the NDA and different national stakeholders on strategic engagement with the GCF were strengthened, with particular attention on increasing the private sector engagement in innovation and investments for climate action in the country's priority sectors. The project supported transferring knowledge and experience at the institutional level regarding the GCF accreditation process to enable the country to access the GCF directly. This included identifying and prioritizing the most potential national institutions for GCF accreditation. As a first step, the Government nominated the Fund of Innovation and Technology Development (FITD) as the first national entity to initiate the GCF accreditation process.
	Support for the management of an effective national coordinative mechanism regarding the Green Climate Fund	USD 300 000	Completed	The project focuses on strengthening the institutional capacities of the NDA to effectively fulfil its roles and responsibilities related to the GCF, to create needed national participatory and stakeholder engagement processes, and to initiate the preparation of a GCF Country Work Programme aligned with the national adaptation and mitigation priorities, the Sustainable Development Goals and the GCF investment criteria.
GiZ	Building capacity towards sustainable human capital development in North Macedonia'	USD 820 076	Under implementation	This Readiness project aims to complement the previous and ongoing readiness efforts by targeting human capital development through a sectoral approach. More specifically, the project will support building the capacities and creating an evidence-base, as well as an enabling environment in the health, education, and labour & social protection sectors, which deal with the socially vulnerable and marginalized groups that are often overlooked in climate change agenda and finance, aiming to address lack of consistent and transparent data and low levels of climate change mainstreaming into the three specified sectors.

IFC	Green Industrial Zones - Gevgelija		Tender procedure	Support for the Directorate for Technological Industrial Development Zones (DTIDZ) to help attract investments to North Macedonia's advanced manufacturing sectors, focusing on greening the industrial zones. The programme is co-financed by EU WBIF.
KfW	Wind farm Bogdanci – Phase I + additional financing	EUR 48 million	Completed	Currently, the Bogdanci wind farm reaches an annual production of about 110 GWh.
	Wind farm Bogdanci – Phase II	EUR 30 million	Under implementation	Within the second phase of this project, the installation of 6 turbines in the Bogdanci wind farm with an installed capacity of 13.8 MW is predicted, while the project beneficiary is JSC ESM. In this way, the wind energy will be used as a renewable energy source by constructing wind power plants to achieve additional annual production of 37 GWh of sustainable energy. The project is co-financed by EU WBIF - grant in the amount of EUR 9 million.
	Energy-efficient rehabilitation of student dormitories	EUR 30 million	Under implementation	In addition to energy efficiency measures for student dormitories, the project includes measures for their complete reconstruction to improve students' living conditions. This project is part of the REEP+ programme co-financed by EU WBIF.
	District heating in Bitola	EUR 39 million	Under implementation	Pipes from REK Bitola to Bitola to establish a distribution network in the city.
	Rehabilitation of large HPP	EUR 36.2 million	Under implementation	Revitalization of six major hydropower plants (HPP Vrutok, HPP Vrben, HPP Raven, HPP Tikvesh, HPP Spilje and HPP Globochica), providing between 20% and 30% of the total electricity generation in the country. This investment will increase their installed capacity by an additional 13.5 MW, increasing electricity generation by approximately 47.5 GWh annually, reducing the maintenance costs, increasing both the reliability and stability of the system and protecting the environment. The rehabilitation is co-financed by EU WBIF grant in the amount of EUR 11 million.
	Bitola PVPP	EUR 150 million	Deasibility study	PVPPs with the installed capacity of approximately 160MW – partnering with ESM and EBRD – the feasibility study is ongoing
USAID	Investments In Developing Energy Assets	USD 20 million (for the region), USD 2 million for MK	Under implementation	Improve regional security of supply, reliability, and efficiency by advancing private sector-led investments in all segments of the energy sector. Develop investment-ready bankable projects, reducing the front-end risks for the investors, thus increasing the chances of the project being financed.

	Regional Activity Critical Infrastructure Digitalization and Resilience	USD 30 million (for the region) USD 1.8 million for MK	Under implementation	Provide assistance that helps North Macedonia improve its critical infrastructure cybersecurity and resilience. Assist the North Macedonia government and integral infrastructure operators to address core cybersecurity vulnerabilities. Assist the North Macedonia government and critical infrastructure operators to address core cybersecurity vulnerabilities
	Connect For Growth	USD 15 million (for the region), USD 2.7 million for MK	Under implementation	C4G partners with Ministries and energy sector stakeholders to diversify energy supply and improve energy sector resilience (e.g. improved planning for and response to supply disruptions, joining energy markets for increased efficiency, etc.) in the face of growing threats to regional energy security. It also helps to advance r regional market integration and decarbonisation.
	Just And Secure Energy Transition (Jset)	USD 20 million (for the region)	Under implementation	JSET supports energy utilities and suppliers, market operators, and regulatory agencies in transitioning the region to fully functional, liquid, and transparent energy markets linked to Central Europe, incentivizing private investment and building the basis for the clean energy transition.
	Enhancing Stability And Technical Expertise In European And Eurasian Energy Markets (Esteem)	USD 4.5 million	Under implementation	ESTEEM builds the capacity of national regulatory authorities to oversee entities that provide critical public services (e.g. electricity, natural gas, water, telecommunications), incentivizing investment while minimizing corruption.
	Development Of Regional Energy Markets Project		Completed	USAID's Development of Regional Energy Markets (DREM) Project is a three-year activity launched in December 2017 that works with the Government of North Macedonia to comply with European Union (EU) energy policy regulations and translate relevant EU legislation into national legislation. The project's overall goal is to enhance the regulatory environment of the energy sector and establish the legal framework for an open, transparent and vibrant energy market while improving energy services to households and industry, thus strengthening the country's energy security.
World Bank	Public Sector Energy Efficiency (EE) Project	EUR 27.2 million	Under implementation	The World Bank is engaged with North Macedonia, currently implementing a Public Sector Energy Efficiency Project (PSEEP) supporting energy efficiency investments in public facilities (loan from the WB in the amount of EUR 25 million + WBIF investment grant EUR 2.2 million). The project includes energy efficiency investments in the healthcare buildings managed by the Ministry of Health and buildings and street lighting owned by municipalities. Furthermore, this project supports establishing and operationalising an Energy Efficiency Fund (EE Fund) as a sustainable and revolving financing mechanism to scale up energy efficiency investments together with the Macedonian Development Bank. Under PSEEP, a EUR 5 million component is

				needed to support the first EE Fund investments in municipal projects once the Fund is established and operationalized.
	Air Quality Project		Planned	The World Bank is also preparing a new investment project to support air quality (AQ) improvements in targeted urban areas in North Macedonia, including municipalities of Bitola and Kichevo, with the highest concentration of PM emissions, as part of a broader project that may support Green Agenda with a focus on air quality. The main components proposed under the project pertaining to AQ improvements will include, combining capital investments and incentive schemes for households: i) equipment for strengthening air quality measurement and monitoring network, analysis, modelling, and data dissemination and ii) incentive schemes for households to replace highly polluting solid-fuel stoves and boilers with more efficient and cleaner heating options, combined with targeted energy efficiency improvements of building. Furthermore, the World Bank has also completed a recent study to support the Government of North Macedonia to design a framework for the acceleration of rooftop solar PV (RSPV) deployment, including. The study provides analysis and recommendations for designing a national program for RSPV scale-up, including the design of potential financing mechanisms.
	The Cooling Facility	USD 879.8 million	Under implementation	The Cooling Facility will be one of the world's first cooling-focused facilities to provide cooling solutions in nine countries. It will focus on regulation, policy, technical assistance, and financing to address and help remove barriers to developing sustainable cooling investments. Planned measures include financing for investments in innovative, climate-friendly cooling technologies and systems and creating an enabling environment by strengthening institutional, policy and regulatory frameworks and building the capacity of key stakeholders in technologies, business models and cooling project appraisal and implementation.