



*Financing Strategy  
for the  
Macedonian enhanced Nationally Determined Contributions  
to Climate Change*

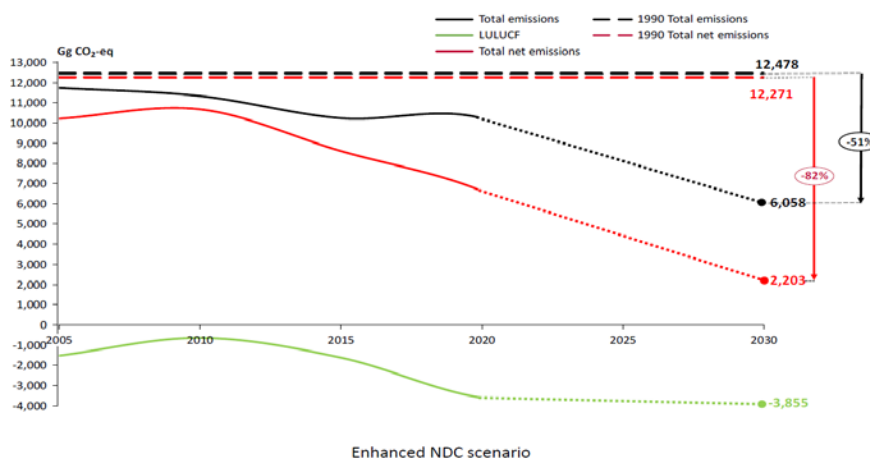
*Policy brief*

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## Financing the Macedonian enhanced NDC

The Republic of North Macedonia is a non-Annex I country to the UNFCCC. Under the Paris Agreement and through its past NDCs, the country has voluntarily committed to **greenhouse gas (GHG) emission reductions** of 30% below 1990 levels by 2030. In its most recent Enhanced NDC, the reduction goal was **raised to 51%** (see Figure 1) by 2030<sup>1</sup>. As the EU has now committed to a reduction of 55% by 2030, this ENDC – a reduction in 2030 of 7,603 kTCO<sub>2</sub>eq/year – is compatible with the EU target.

**Figure 1 Gross and Net Emission Reductions for the ENDC of North Macedonia**



**Financing requirements** for the Macedonian ENDC **exceed EUR 20 billion of expenditure through 2030**. The Enhanced Nationally Determined Contribution (NDC) **Financing Strategy** seeks to **establish the most attainable financing scenario** given current investment patterns and structures for the country's largest emissions sector, energy, as well as the other sectors of waste, and forestry and agriculture. It also takes into account the **fiscal implications of the COVID-19 pandemic** and the need to **rebuild the economy** with a new source of green jobs, by **prioritising** those measures as part of the methodology.

Given limited resources, this financing strategy proposes an **8-point approach to prioritising measures**, as described below.

1. *Invest first in those sectors which contribute the most to ENDC targets*
2. *Invest in high-return technologies*
3. *Target technologies with rapidly decreasing cost curves*
4. *Maximise green infrastructure jobs*
5. *Finance Measures which maximise external investment sources*
6. *Choose Measures which can be highly leveraged by regulation*
7. *Leverage funds made available from a national carbon tax*
8. *Maximise impact and benefits of carbon markets*

<sup>1</sup><https://klimatskipromeni.mk/data/rest/file/download/93e8205fb7c315739bb8a1c732f02b6783d93b018e9c1c8fa7a0608e7a8ec184.pdf>

## Summary of measures by Financing Strategy

ENDC measures and policies (Ordered by Priority)	Cost/budget € M	No of Jobs	GHG emission Reductions (tons)	Who should finance this measure?	Type of financing Mechanism	Timing	Assumptions/Pre-conditions
<b>Energy Generation</b>							
<i>Reduction in network losses</i>	€170		323.4	Foreign direct investment (FDI) for grid balancing; EIB/EBRD.	Long term loans.	Immediate	Integration of Western Balkan grid; Necessary to integrate RES.
<i>FiT and FiP</i>	€312	372	383	Private Investors/Banks.	Project financing.	Right away	Harmonise with EU rules; Prepare shovel-ready Projects.
<i>RES w/o incentives</i>	€1,046	1377	189.2	IPA II; EIB/EBRD; Supplier Credit.	Blended finance; Risk reduction.	To follow FiT and FiP projects in line with EU standards; Implement after carbon tax.	Harmonise with EU regulations; Prepare shovel-ready Projects.
<i>Rooftop solar</i>	€318	443	142	Private Investors Seller finance	Third party finance with free energy audits,	Right away	Funds on-lent through banks.
<i>Large Hydro</i>	€1,716		740.7	Private sector funding; IPA II; EIB/EBRD.	Through national auction; Multilateral development banks (MDBs); Commercial Banks.	After wind and solar tenders (due to environmental issues to be addressed)	Subsidies reduced so they are the same as other RES. If IHA environmental rules are met.
<b>Lighting and Building</b>							
<i>Replace Incandescent lights</i>	€558	274	401.8	Third party finance to commercial entities; EBRD regional funding.	Energy savings contracts.	Right away	Publicity and free light bulb schemes; Free energy audits.
<i>Street lighting municipalities</i>	€19.5	9	32.5	Budgets/3 <sup>rd</sup> party finance; GCF Green Cities Program.	Energy savings contracts.	Right away-immediate savings.	Tie municipal budgets to implementation.
<i>New Passive Buildings</i>	€1,068	1324	17	Private finance – developer.	Long term “green” loans or mortgage.	After regulation are in place	Regulations to be put in place.
<i>New Construction</i>	€283	553	19.8	Developer Pays.	Long term “green” loans or mortgage.	After regulation are in place	Regulations to be put in place.
<i>Retrofitting residential buildings</i>	€942	1576	49	Habitat for Humanity; REEP Plus; EBRD; Commercial banks.	Low interest loans to families; On-lending from Government to municipalities.	Right away-immediate savings and reduction in energy poverty	UNOPS grants for preparing regulations; EBRD aid for energy audits.

ENDC measures and policies (Ordered by Priority)	Cost/budget € M	No of Jobs	GHG emission Reductions (tons)	Who should finance this measure?	Type of financing Mechanism	Timing	Assumptions/Pre-conditions
<i>Retrofitting commercial buildings</i>	€530	482	98.2	Companies' balance sheets; REEP Plus; EBRD; Commercial banks.	"Green" loans or bonds; Green mortgages	Right away-immediate savings.	UNOPS grants for preparation of regulations; EBRD aid for energy audits.
<i>Heat pumps</i>	€331	38	392.3	Tax incentives; Municipal budgets; Housing associations; REEP Plus; EBRD; Commercial banks.	Home budgets, subsidies from government for fuel poverty	Heating and electricity transition must be addressed together, so in tandem with phasing out of fossil fuels for heating.	Part of overall regulation to de-fossilize heating.
<i>Biomass CHP</i>	€24	28	21	KfW grants; EU; Private investors.	Blended finance	Small sector - so not so urgent. Medium term	PPAs with distributor needs to be possible, or sell to private heating customer.
<i>Solar thermal/solar thermal PV (Hybrid)</i>	€35	401	7.2	Supplier credit; Third party finance REEP <sup>2</sup>	Energy Savings contracts	Medium term. Target technology; start prototypes	Net metering
<i>Central Heating</i>	€3.2	N/A	9.3	Municipal Budgets to pay for District Heating (EBRD)	National budgets	Broad trend toward distributed heating; is this infrastructure justified?	
<b>IPPU</b>							
<i>Energy mgmt, manufacturing industries</i>	N/A	N/A	67.8	Companies' balance sheets; Private Energy efficiency funds; REEP Plus, EBRD; Local banks.	"Green" loans or bonds for "inside the fence" investments; Energy contracts. Carbon Finance	Immediate launch of incentives	Energy efficiency regulation on motors, lights; Carbon Tax.
<i>Intro of advanced technologies</i>	€345	N/A	128.3	Companies' balance sheets; Energy efficiency funds	Reduce operating cost; Private investment	Long term	Energy efficiency regulation on motors, lights; Carbon Tax.
<i>Efficient electric motors</i>	€100	N/A	14.9	Companies' balance sheets; Energy efficiency funds	Reduction operating cost; Private investment	Medium term	Reduce subsidies for diesel.
<b>Transport</b>							
<i>Renew car fleet</i>	€1,660	N/A	24	Car financing, Tax incentives	Green Leases, Car loans	Long term	Mileage regulations; Old car purchase program; Tax incentives for less polluting cars.
<i>Railways</i>	€181	N/A	37.2	Long term borrowing	Government bonds	Medium term	Compliance with EU regulations.

<sup>2</sup> Regional [Energy Efficiency Programme](#) for the Western Balkans

ENDC measures and policies (Ordered by Priority)	Cost/budget € M	No of Jobs	GHG emission Reductions (tons)	Who should finance this measure?	Type of financing Mechanism	Timing	Assumptions/Pre-conditions
				(EIB, EBRD).			
<i>Renewal, fleet</i>	€2,300	N/A	64.6				
<i>Electrification of transport</i>	€4,132	N/A	41.9	EBRD, EU and multi-donor; Asset finance by manufacturer	Long term govt borrowing, E5P-financed electric “green” buses.	Continue from program in 2020	Regulations on emissions; inner city low pollution zones.
<b>Agriculture and Forestry</b>							
<i>Reduction of CH4 emissions from dairy cows</i>	€1.2	N/A	41.9	Carbon offset project Third party funding from project developer	Direct investment plus offsets	Short to Medium term, make use of offset markets	Incentivise farmers.
<i>Reduction of N2 from swine</i>	€1	N/A	2.1	Carbon offset project; Seek third party funding from project developer.	Direct investment plus offsets	Short to Medium term, make use of offset markets	Incentivise farmers.
<i>Integrated management of forest fires</i>	€1.5	N/A	345	Could be integrated with biomass project.	Government budget	Short to medium term, make use of offset markets	Compliance with EU regulations.
<i>Afforestation</i>	€8	N/A	312	Carbon offset project; EU and ICCC priority.	Carbon developers	Short to medium term, make use of offset markets	Compliance with EU regulations.
<i>Biochar for carbon sink, agricultural land</i>	€47	N/A	110	Carbon offset project; EU and ICCC priority; Seek third party funding developer.	Manufacturing unit finance from the EU Carbon developers	Short to medium term, make use of offset markets	Feasibility report.
<i>Solar Irrigation</i>	€47	N/A	93.3	Project developers; Farm owners.	Private or third party finance.		No barriers to implementation.
<i>Landfill gas flaring</i>	€21	N/A	489.7	Carbon offset project; EU and ICCC priority; Seek third party funding developer.	Private or third party finance.	Short to medium term, make use of offset markets	Landfill gas project pipeline with basic information on methane resources.

NDC measures are rated for compliance with these criteria and described in a matrix in the Appendix of this policy brief, which includes the relative urgency of each measure. The matrix includes mini-strategies for financing and/or implementing each measure, assessing options for private investment as well as the suitability and potential attractiveness of each action to the private sector.

## Key findings

Key findings on ENDC measures include the following:

- With transition from coal targeted starting in 2025, major capital investment in renewable energy and energy efficiency is unavoidable and urgent. Because such a large percentage of investment goes to energy and all its uses, this report focuses on a wide range of energy-related measures and financing approaches.
- The criteria screening indicates the need for an immediate focus on utility-scale hydro, wind and solar plants, as well as broad energy efficiency measures that offer rapid and relatively secure payback.
- The introduction of electric vehicles (EVs) will require significant fiscal and infrastructure support as well as international partnerships, as will the financing of railways.
- A cohesive approach to agriculture and afforestation using voluntary carbon markets as well as project finance structures will be critical to achieve the ENDC but is relatively less important.

Key findings on financing include the following:

- Most of the measures, except regulatory measures, can be financed through private capital.
- Sources include international blended capital structures, for-profit vehicles such as EBRD energy efficiency funds, or low-interest capital sourced from the international capital markets, such as green bonds.
- Private carbon funds and offset aggregators which develop zero emission projects in anticipation of sale of offsets and removal credits can also support these efforts, especially in the nature-based finance category.
- Large renewable energy projects already benefit from government guarantee mechanisms to offset payment risk.
- A national or regional green bank could act as a repository of capital and expertise to assist in accelerating transition.
- New technologies and projects need to be developed as “shovel ready” investor opportunities in order to create a long-term competitive advantage for North Macedonia.

The Energy sector represents the largest share of countrywide GHG emissions: fossil fuels, primarily coal, account for over 80% of the total energy supply, and create 70 pct of the national carbon footprint.<sup>3</sup> With transition away from coal targeted starting in 2025, major capital investment in renewable energy and energy efficiency is unavoidable and urgent. Because such a large percentage of investment goes to energy and all its uses, this financing strategy puts the most emphasis on a range of energy-related measures and financing approaches.

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<sup>3</sup> In 2017, coal and natural gas-powered generation made up 69% of total electricity generation and constitutes the single largest share of GHG emissions among all major sectors.

Using relevant criteria to optimise an EDNC implementation schedule yields an immediate focus on utility-scale hydro, wind and solar plants as well as broad energy efficiency measures which offer rapid and relatively secure payback. The introduction of EVs will require significant fiscal and infrastructure support as well as international partnerships, as will the financing of railways. In addition, a cohesive approach to agriculture and afforestation using the voluntary carbon markets as well as project finance, will be critical to achieving the ENDC.

Most of the measures can be financed through private capital, international blended capital structures, for-profit vehicles such as energy efficiency funds, or low interest capital sourced from the international capital markets, such as green bonds. Private carbon funds and offset aggregators which develop zero emission projects in anticipation of sale of offsets and removal credits can support these efforts, especially in the nature-based finance category. Projects should provide maximum carbon reductions while contributing to the SDGs. Further components of the strategy include large renewable energy projects which benefit from government or international guarantee mechanisms, as well as a national or regional green bank which could act as a repository of capital and expertise to assist in accelerating transition. New technologies need to be developed as “shovel ready” investor opportunities.

This financing strategy proposes a prioritisation of measures. In Section 3 we develop a methodology to implement ENDC measures according to their relative cost of carbon reductions, declining cost of technology, responsiveness to regulation, production of jobs, and other criteria. Each measure is rated for its compliance to these criteria and appears in a matrix in Appendix B. We then establish a mini strategy for the financing and/or implementation of each measure, including rating the relative urgency of each and assessing options for private investment. At a basic level, this is done by determining if the measure is likely to reduce emissions as well as generate a predictable future revenue stream, or if the government will pay private sector investors directly through a PPP concession. If annual net cash flows are insufficient or risky, a range of financial and non-financial interventions can be considered.

## Recommendations

Implementing the North Macedonian ENDC will require integrating climate-related activities into existing and proposed infrastructure programmes. This is likely to involve initiatives led not only by the Ministry of Environment, but also Ministries of Planning, Transport, Energy and others. To normalise climate-related activities, it is helpful to build capacity across all government departments involved in implementation.

This will include increasing private sector engagement in national climate policies, strategies, coordinating committees and national financing bodies, and promoting public–private dialogue on climate finance through regular forums and institutions. Increasing public–private dialogue can increase understanding of climate change opportunities within the private sector, as well as increase appreciation of investment barriers. It will be critical to involve the private sector in the design and implementation of national climate change policies and projects. Specific recommendations follow:

### *1. Institutionalise the oversight and coordination of climate finance activities.*

- This can increase domestic, as well as international, fiscal support for climate initiatives.
- Mainstream climate change into national budgeting processes
- Ensure NDC implementation priorities are reflected in budgets, helping existing policies, programmes and project pipelines to be 'green'.

### *2. Assess public and private financing options*

- Assess the potential for further domestic fiscal support for each measure. Review development policies, programmes and infrastructure project pipelines to assess the potential for 'greening' these activities to include ENDC priorities and screening the climate risks or mitigation potential associated with these projects.
- Identify opportunities to mainstream climate change priorities into the national budgetary and infrastructure planning process. This can indirectly increase domestic and international fiscal support for climate change initiatives.
- Additional engagement with key departments may be required, including planning, finance and sectors involved with ENDC implementation, at both the national and subnational levels.
- Consider what information on the co-benefits of climate action might be useful to these departments, to obtain buy-in and support.
- Assess the amount and type of support required to close each funding gap (e.g. capacity-building, technical assistance, finance) and the likely type of funding source (e.g. government, bilateral and multilateral funders and private sector).
- If investors are hesitant to make significant investments in climate-related projects, consider whether smaller, more manageable projects can be financed initially (e.g. demonstration or pilot projects) thereby improving the financial track record for the sector or technology.

### *3. Secure access to international funds for national/subnational institutions*

Direct access involves national or subnational institutions directly receiving finance from funding sources and disbursing them to relevant projects without an international agency managing and overseeing the funds as an intermediary. Each fund has different accreditation requirements for institutions seeking direct access, including demonstrating capacities such as financial and administrative management, monitoring and evaluation (M&E), project management, gender mainstreaming and equity, and environmental and social management.

- Screen a selection of national and subnational institutions against the accreditation requirements for the relevant fund or funds, to identify potential eligible institutions and the resources required to fully meet the accreditation requirements.
- For institutions that are already accredited (depending on the funding source, these may be referred to as 'accredited entities' or 'implementing entities'), the next step may be to develop a project pipeline and put forward funding proposals so that finance can be accessed.

### *4. Develop a project pipeline that can be put forward to financing sources*

Build technical and relational capacities within North Macedonian Ministries to develop a project pipeline. Capacities that can support the development of a project pipeline include:



- The ability to undertake financial and technology needs assessments across priority sectors, to assess where efforts need to be focused and ensure projects are robust;
- Technical understanding of available technologies to ensure the most suitable and effective technology is being used;
- Coordination with relevant ministries to develop joint project proposals and navigate ministerial priorities;
- Financial modelling and cost–benefit analysis expertise to determine the feasibility of the proposed projects and ensure projects stay within the ENDC budget;
- Writing skills to develop business cases and project concept notes, to ensure the most effective outcomes for implemented projects;
- The capability to design and select climate change projects and programmes.

Any climate change-related capacity-building could potentially include the integration of SDG principles into project concepts. Implementing the ENDC will require a strong pipeline of climate change projects, as well as integrating climate-related activities into existing and proposed infrastructure programmes.

To support the integration of climate-related activities into infrastructure projects and programmes, it may be helpful to build capacity across all government departments involved in ENDC implementation. In addition, there may be non-government stakeholders who have key roles to play in the design and selection of climate change projects. It may be useful to include them in any capacity-building programmes.

- Develop funding proposals that can be shared with bilateral and multilateral funders
- Many bilateral and multilateral financing sources allow for the submission of project concept notes, so that initial feedback can be received on the eligibility and viability of the project, before preparing a full funding proposal.
- Requirements for full funding proposals will vary between funders, with typical requirements including information about financing requirements (e.g. co-financing to be provided by the country), as well as a detailed description of project activities and the anticipated results.

### *5. Develop funding proposals for the private sector*

It may be useful to meet private sector investors to receive early feedback on project ideas, for example through roundtable discussions and consultations. Private capital will seek funding proposals that address the following concerns:

- Is the technical solution well thought through - does the technology have a track record?
- What remedies are available if operating costs are higher than expected (e.g. enforceable performance bonds from construction companies)?
- What reassurance can be given that the revenues will be achieved (e.g. additional government support, government-backed guarantees and credit ratings, minimum price agreements and realistic demand forecasts)?

Identify the barriers to private sector investment across relevant priority actions for ENDC implementation. These can include perceived or actual risks (e.g. credit risks, policy or political risks, technology risks), the scale of investment opportunity available (e.g. transaction costs are too high in relation to the size of the opportunity), or returns are too low (e.g. due to interest rates and taxes). Identify financial and non-financial interventions needed to address barriers for private sector investment across relevant priority actions for ENDC implementation. Financial interventions include:

- risk-mitigation instruments (e.g. policy risk insurance: government or donor-backed partial guarantees);
- concessionary loans (e.g. to improve the financial viability of projects);
- grants (e.g. to improve financial viability of projects or climate-risk assessments and energy-efficiency audits);
- aggregation instruments (e.g. to increase the scale of investment opportunity);
- tax breaks (e.g. for low-carbon or climate-resilient technologies);
- feed-in tariffs (e.g. to incentivise renewable energy);
- and public–private partnerships.

Non-financial interventions include:

- strengthening the rule of law (e.g. so that investors can seek compensation if energy companies do not honour offtake agreements); developing ‘matchmaking’ services (e.g. between project developers and investors);
- capacity-building for the financial sector (e.g. to address perceived risks associated with low-carbon or climate-resilient technologies);
- and knowledge transfer (e.g. writing guides for developing projects, preparing legal templates for power purchase agreements, rental and loan agreements).

Develop public–private financing structures and pilot projects to showcase viable business models and attract climate investment. Strengthen capacity of relevant departments to identify and develop financially viable opportunities for the private sector, including:

- knowledge of financial and investment terminology (e.g. payback periods, internal rates of return, equity returns, pre-tax and pre-finance project returns)
- understanding of the constraints and requirements of investors (e.g. banks typically need to see sufficient net cash flows to comfortably pay loans)
- knowledge of the range of financial and non-financial mechanisms available to increase the financial viability of projects for the private sector, and to reduce risks (e.g. the risk of cost overruns, revenue streams being lower than anticipated), as well as different ways to call for private sector involvement in projects (e.g. funding competitions, bidding for projects)
- skills and experience in conducting commercial negotiations with the private sector.
- Increase private sector engagement in national climate policies, strategies, coordinating committees and national financing bodies.

Greater public–private dialogue on climate finance through regular forums and institutions will include sectoral associations, investor platforms and public consultations. Increasing dialogue can

lead to increased understanding of climate change opportunities within the private sector, as well as appreciation of investment barriers and how these can be addressed.

### *6. Design and implement a climate finance MRV System*

Identify climate-related spending across all relevant finance flows. Building on any finance MRV systems that are in place, develop standard methodologies and key performance indicators for a climate finance MRV system, including agreeing a definition – with all relevant stakeholders – of what constitutes climate change-related activities.

- Identify all the relevant institutions that are likely to receive climate finance, and put in place data-sharing agreements (e.g. memoranda of understanding) between relevant departments and institutions, and the climate finance tracking team.
- Track and report climate-related spending across all relevant finance flows.
- Introduce regular reporting on climate activities for government ministries and implementing entities with key performance indicators to ensure comparability.
- Develop a central tracking system that allows users to standardise input data.
- Process and analyse data on a regular basis, delivering findings to be used to guide the strategic thinking of the team leading national climate finance coordination.

North Macedonia has most of the components in place to allow it to follow the lead of other European countries and profit from large scale investment into its energy, industrial and built infrastructure. There is every reason to believe that with the strong commitment of the EU to a zero-carbon transition as well as opportunities from North Macedonia's legacy high emissions, international investment funds, just transition expenditure, green bonds, monetised energy savings and carbon offsets will provide significant capital to finance the North Macedonian ENDC.

## Appendix

### 1. Policy Initiatives Supporting NDC Financing Strategy

Instrument Type	Policy Initiative	Description	Impact on Financial Sector	Action in Northern Macedonia?
<b>Market-based Policies</b>				
	Carbon Emissions Trading (eg EU ETS)	A market-based incentive to reduce pollution through a cap-and-trade mechanism. Firms are required to hold certificates equal to their emissions.	Increases attractiveness of emissions-reducing investments	YES – Voluntary markets
	Renewable Energy Certificates	A certificate awarded to certify the production of renewable energy	Renewable energy plants sell certificates to improve returns to investors	NO
	Energy Savings Certificates	Certification of one unit of saved electricity, enabling trading of certificates	Energy savings investors can sell certificates to finance projects.	NO
	Net Metering	A power supply agreement allowing for two-way exchange between the grid and consumer with renewable energy generation. Customers pay only for net electricity.	Creates significant financial incentives to invest in distributed energy systems.	Proposed
<b>Regulations</b>				
	Feed-In-Tariff	Policy which offers fixed rate price for a fixed term at which renewable energy will be bought by the grid & guarantees grid access	Creates a financial structure for large renewable energy projects. Bankers can lend and investors calculate returns	YES
	Renewable Portfolio quota	Regulation that a fraction of electricity, heat or installed energy comes from RES	Increases attractiveness of renewable energy investments	YES
	Energy savings targets	Requirement that individuals or companies meet energy savings.	Increases revenues for ESCOs	YES
	Power purchase agreements	Contract between government and energy producer to purchase power over a specific period for a specific price.	Increases investments in large-scale renewable energy.	YES
	Standards for energy audits	Savings targets which quantify energy savings opportunities for industrial energy savings investment	Higher transparency and cash flow security for the financing of energy savings investments	PROPOSED
	Priority sector lending	A part of domestic bank lending is allocated to green projects.	Obligates financial institutions to dedicate funds to priority sectors	NO
	Public sector bidding	Govt organizes tenders to purchase renewable energy from new build installations under competitive bidding, typically for electricity rates above the market norm.	Increases returns on renewable energy investments; anticipated returns are not known before completion of bidding process	YES

Fiscal Incentives				
	Government guarantees	Government credit backs rating of a climate infrastructure project, making it bankable	Easier to get financing, cost of capital for projects is reduced.	LIMITED
	Tax exemption/tax reduction	Exemption from or reduction of a specific tax (income tax, VAT, import tax, property tax) granted to an organisation	Decreases costs of renewable energy or energy efficiency projects	PROPOSED
	Capital cost subsidy	One-time payment by a utility, govt agency or publicly owned bank to cover a share of the capital cost of an investment.	Decreases capital expenditure required for up-front investments	PROPOSED
	Interest rate subsidy	Payment by a govt agency or public bank to cover a share of the capital cost of an investment	Increases financial institutions returns on credit; reduces risk	YES
	Subsidy for services	Maintenance or energy audits	Increases returns from operating RES	NO
	Accelerated tax depreciation	Allows a company to depreciate assets so that the purchase of a fixed asset is more attractive	Decreases taxable returns in the early years of an asset's life	NO
	Carbon tax	A tax levied on firms' carbon dioxide emissions	Decreases returns on co2 emitting plants	YES
Public financing				
	Refinancing	A public funding scheme that refinances financial institutions assets at below market rates.	Decreases cost of capital for financial institutions.	NO
	Public venture capital fund	Scheme provided to early stage companies in RES; energy efficiency projects with grants/ investmt	Greater investment opportunities through increased number of high-growth start-ups	NO/EU
	Loan and credit guarantees	Govt or institution assumes the debt of a borrower in case of default.	Decreases financial institutions risks in extending credit	YES
	Direct public financing	Financing provided by govts or institutions in the form of equity, debt or quasi debt, sometimes as a PPP	When combined with PPP, improves investment condition for financial institutions	YES
	Grant funding	A scheme whereby govt agencies or institutions offer funding for projects, programs and feasibility studies. Grant funding provided within a PPP.	Increases awareness of successful projects financed with grants. Improves investment conditions for financial institutions	YES
Information	Green banking guidelines and/or establishment of a Green Bank	Govt agencies, central banks provide guidelines for activities which reduce environmental risk in credit decisions, assessing clean technologies, etc.	Increases financial institutions' awareness of opportunities in green banking	NO

## 2. Mapping NDC measures Against Investment Criteria

ENDC measures and policies	Data from NDC			North Macedonia NDC Goals		Commercial Appeal to Private Sector		Intl Finance	Govt Policy Leverage		
	Cost/budget € M	No of Jobs	GHG emission Reductions (tons)	1. Contributes most to NDC GHG targets	2. Maximises jobs	3. Rapidly declining cost curve	4. High return or low risk technology	5. Appeals to intl finance sources	6. High Leverage through regulation	7. High Leverage thru Carbon Tax	8. High Leverage thru Carbon
Reduction in network losses	€170.0	N/A	323.4								
Large Hydro	€1716	N/A	740.7								
FIT and FiP	€312.1	372	383								
Biomass CHP	€24.3	28	21								
Rooftop solar	€318	443	142								
RES w/o incentives	€1046	1377	189.2								
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Heat pumps	€330.6	38	392.3								
New Construction	€282.7	553	19.8								
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Street lighting municipalities	€19.5	9	32.5								
Replace Incadesent lights	€558	274	401.8								
Retrofitting resid buildings	€941.8	1576	49								
Retrofitting com. buildngs	€530	482	98.2								
Central Heating	€3.2		9.3								
Energy mgmt, manufactng industries	N/A	N/A	67.8								
Efficient electric motors	€99.7	N/A	14.9								
Intro of avanccd technologies	€344.8	N/A	128.3								
Renew car fleet	€1659.5		24								
Railways	€180.6		37.2								
Renewal national fleet	€1660		24								

<i>Advanced mobility</i>			3.6								
<i>Renewal, other fleet</i>	€2300		64.6								
<i>Electrification of transport</i>	€4132		41.9								
<i>Reduction of CH4 emissions from dairy cows</i>	€2		41.9								
<i>Reduction of N2 from swine</i>	€1		2.1								
<i>Integrated management of forest fires</i>	€1.5		345								
<i>Afforestation</i>	€7.8		312								
<i>Biochar for carbon sink, agricultural land</i>	€47		110								
<i>Solar Irrigation</i>	€47		93.3								
<i>Landfill gas flaring</i>	€20.5		489.7								
<i>Treatment w/ composting</i>	€36.1		108								
<i>Selection of waste - paper</i>	€2.0 €2.1		62.5								



This document has been prepared with UNDP support, within the Climate Promise Initiative, to support implementation of the Macedonian enhanced NDC.