



PROMITHEAS – 4

**Knowledge transfer and research needs for preparing
mitigation/adaptation policy portfolios**

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Evaluation of Mitigation / Adaptation policy portfolios for Albania



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ABBREVIATIONS

Abbreviation	Full name
AKBN	National Agency of Natural Resources
AEA	Austrian Agency of Energy & Albania Energy Association
AHP	Analytical Hierarchy Process
ALL	Albanian Lek
AMS	Acronym of combination of AHP, MAUT and SMART
BAU	Business As Usual
CDM	Clean Development Mechanism
CHP	Combined Heat and Power
DCM	Decision of Council of Ministers
DNA	Designated National Authority
DRA	Drini River Area
EBRD	European Bank of Reconstruction and Development
EEA	European Environmental Agency
EEl	Energy Efficiency Improvement
EESDC	Energy and Environment Sustainable Development Center
ERE	Albanian Energy Regulator
ESD	Energy Services Directive
EU	European Union
FAO	Food and Agricultural Organization
FITs	Feed In Tariffs
GDP	Gross Domestic Product
GEF	Global Environment Fund
GHG	Greenhouse Gas
HPP	Hydro Power Plant
ICI	Industry Confidence Indicator
IMF	International Monetary Fund
IPA	Instrument for Pre-Accession Assistance
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LEAP	Long-range Energy Alternatives Planning
LHPP	Large Hydro Power Plant
LPG	Liquefied Petroleum Gas
LULUCF	Land Use, Land Use Change, Forestry
MAUT	Multi-Attribute Utility Theory
NEEAP	National Energy Efficiency Action Plan
NTUA	National Technical University of Athens
OPT	Optimistic
PI	Policy Instrument
PM	Policy Mixture
PPA	Power Purchase Agreement
PES	Pessimistic
RES	Renewable Energy Sources
SEE	South East Europe
SHPP	Small Hydro Power Plant
SMART	Simple Multi-Attribute Ranking Technique
SNC	Second National Communication
SSCHPP	Small Scale Combined Heat and Power Plants
SWHP	Small Water Heating Plants
T & D	Transmission and Development
TFC	Total Final Consumption
TPES	Total Primary Energy Sources
TOE	Tonne of Oil Equivalent
UN	United Nations
UNDP	United Nations Development Programme



UNECE	United Nations Economic Committee for Europe
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
y-o-y	Year-on-year
WFD	Water Framework Directive
WMO	World Meteorological Organization



ASSESSMENT OF THE THREE DEVELOPED SCENARIOS FOR ALBANIA, THROUGH THE MULTI - CRITERIA METHOD AMS

AMS method

Each scenario will be assessed for its performance under the criteria/sub-criteria of the AMS method which is the combination of three standard multi-criteria methods: the Analytical Hierarchy Process (AHP), the Multi-Attribute Utility Theory (MAUT) and the Simple Multi-Attribute Ranking Technique (SMART) (Konidari and Mavrikis, 2007; 2006). AMS is developed for evaluating climate policy instruments (PI) or relevant Policy Mixes (PM) and with suitable modification for evaluating their interactions as well.

Evaluation of Albanian scenarios for M/A policy portfolios

Required data

The LEAP software provided the following outcomes for all three scenarios:

Table 1: Total emissions for Albania

Scenario	Total GHG emissions (in MtCO _{2eq})		
	2000	2020	2050
BAU	3,664	5,816	11,939
Opt	3,664	4,942	11,212
Pes	3,664	5,808	12,111

Table 2: Emissions per each sector for Albania

Scenario	GHG emissions (in MtCO _{2eq})		
	2000	2020	2050
Households			
BAU	0,178	0,380	0,860
Opt	0,178	0,316	0,796
Pes	0,178	0,348	0,828
Agriculture			
BAU	0,413	0,235	0,493
Opt	0,413	0,230	0,482
Pes	0,413	0,232	0,487
Services			
BAU	0,150	0,145	0,304
Opt	0,150	0,121	0,280
Pes	0,150	0,133	0,292
Industry			
BAU	0,394	0,835	1,752
Opt	0,394	0,687	1,604
Pes	0,394	0,762	1,678
Transport			
BAU	1,438	2,601	5,457
Opt	1,438	2,148	4,938
Pes	1,438	2,393	5,240
Electricity generation			
BAU	0,000	0,381	0,477
Opt	0,000	0,203	0,517
Pes	0,000	0,702	0,990

Table 3: Other environmental effects for Albania under each scenario.

Scenario	In MtCO ₂ eq		
	2000	2020	2050
<i>Environmental effects (Carbon Monoxide (CO)- Nitrogen Oxides (NOx)- Non Methane Volatile Organic Compounds- Sulfur Dioxide)</i>			
BAU	0,297	0,471	0,994
Opt	0,297	0,395	0,914
Pes	0,297	0,439	0,963

Table 4: Water use.

Scenario	In billion m ³		
	2000	2020	2050
<i>Household water use</i>			
BAU	1,760	1,830	1,830
Opt	1,760	1,880	1,740
Pes	1,760	1,880	1,740
<i>Industrial water use</i>			
BAU	0,211	0,217	0,217
Opt	0,211	0,263	0,551
Pes	0,211	0,263	0,551
<i>Agricultural water use</i>			
BAU	1,040	1,045	1,045
Opt	1,040	1,086	1,155
Pes	1,040	1,102	1,193

Assignment of grades

The ClimAMS-2012 software is used to evaluate all scenarios.

The screenshot shows the 'Selection' window of the ClimAMS-2012 software. It is divided into two main sections: 'Climate policy objects (instruments, scenarios)' and 'Countries'.
 In the 'Climate policy objects' section, the user has selected 3 policy instruments or scenarios. The names 'BAU', 'OPT', and 'PES' are entered in the corresponding input fields. Below this, there are several empty input fields for additional scenarios.
 In the 'Countries' section, the user has selected 1 country for evaluation. 'ALBANIA' is entered in the input field. Below this, there are several empty input fields for additional countries.
 At the bottom of the window, there are buttons for 'Help', 'Close this form', 'Go to previous form', 'Proceed with criteria tree', and 'Exit ClimAMS'.

Figure 1: Initial settings for the 3-scenarios in ClimAMS-2012.

Criterion 1: Environmental performance

The following grades in MAUT scale are calculated using the software ClimaAMS-2012 for

- the first sub-criterion “**Direct contribution to GHG emission reductions**” and the outcome of LEAP for the total expected GHG emission of the country in year 2020. The scenario with the fewer amounts of emissions has the best performance for this sub-criterion. Negative values are inserted to the software.
- the second sub-criterion “**Indirect environmental effects**” and the total amount of the total environmental effects provided by LEAP. Negative values are inserted to the software.

Name of evaluated country		Environmental performance		
Name of criterion		Grade for Environmental performance	Grade for first sub-criterion	Grade for second sub-criterion
Albania		0.833	83.300	16.700
Instrument 1:	BAU	0.000	0.000	0.000
Instrument 2:	OPT	100.000	83.300	16.700
Instrument 3:	PES	7.794	0.762	7.032
Instrument 4:	-	0.000	0.000	0.000
Instrument 5:	-	0.000	0.000	0.000
Instrument 6:	-	0.000	0.000	0.000
Instrument 7:	-	0.000	0.000	0.000
Instrument 8:	-	0.000	0.000	0.000
Instrument 9:	-	0.000	0.000	0.000
Instrument 10:	-	0.000	0.000	0.000
Instrument 11:	-	0.000	0.000	0.000
Instrument 12:	-	0.000	0.000	0.000
Instrument 13:	-	0.000	0.000	0.000
Instrument 14:	-	0.000	0.000	0.000
Instrument 15:	-	0.000	0.000	0.000

Figure 2: Grades for the first criteria and its sub-criteria for Albania.

Criterion 2: Political acceptability

For the first sub-criterion the mean CEI for each sector was calculated depending on the policy instruments that were selected per scenario (Tables 8, 9 and 10). Each value was multiplied with the respective amount of GHG emission reductions that were estimated by LEAP outcomes.

Table 5: Overall cost efficiency for the three scenarios.

Scen.	Mitigation/Adaptation Cost (pseudo-monetary units)										Total
	Buildings (Hous. – Serv.)		Agriculture		Industry		Transport		Energy		
	M	A	M	A	M	A	M	A	M	A	
BAU	0	0	0	0	0	0	0	0	0	0	0
OPT	-0,231	0	0,0012	0	0,022	0	0,045	0	-0,074	0	-0,237
PES	-0,116	0	0,0008	0	0,000	0	0,031	0	0,000	0	-0,084

Table 6: Mean CEI for each sector depending on the policy instruments of the BAU scenario.

Mitigation						
Scen.	Sector	Technological options	Policy instrument	CEI	Mean CEI	
BAU	Buildings	Energy management	Performance standards (energy audits, metering of energy consumption, energy efficiency standards) (Law No. 9379/2005 and Law No. 10119/2009)	-5,75	(-5,75-1,5-0,75-2,5)/4= -2,625	
		Energy efficiency	Energy Building Code - Building isolation requirements (Law No. 8937/2002)	-1,5		
		Energy management	Economic instruments (Subsidy, tax rebates, loans) (Law No. 9379/2005)	-0,75		
		Energy efficient appliances	Energy labeling for appliances (Law No. 9379/2005 and Law No.10113/2009)	-2,5		
	Industry	-	-	-	-	
	Transport	Fuel switch	Regulatory standards (use of biofuels) (Law No. 9876/2008)	+0,25	(+0,25+0,25)/2 = + 0,25	
		-	Economic instruments (Carbon fee) (Law No. 9975/2008)	+0,25		
	Energy	Promotion of RES technologies	Economic instruments - Subsidy (Feed-in-tariffs, tax exemptions) (Law No. 8987/2002, Government Decree No.27/2007)	-0,25	-0,25	
	Adaptation					
			-	-	-	

Table 7: Mean CEI for each sector depending on the selected policy instruments of the OPT scenario.

Mitigation					
Scen.	Sector	Technological options	Policy instrument	CEI	Mean CEI
OPT	Buildings	Energy management	Performance standards (energy audits, metering of energy consumption, energy efficiency standards, certificate performance) (Law No. 9379/2005 and Law No. 10119/2009, Planned)	-5,75	$(-5,75-1,5-0,75-2,5)/4 = -2,625$
		Energy efficiency	Energy Building Code - Building isolation requirements (Law No. 8937/2002)	-1,5	
		Energy management	Economic instruments (Subsidy, tax rebates, loans) (Law No. 9379/2005)	-0,75	
		Energy efficient appliances	Energy labeling for appliances (Law No. 9379/2005 and Law No.10113/2009)	-2,5	
	Industry	Energy efficiency	Technological or design standards (Proposed)	+0,25	+0,25
	Transport	Fuel switch	Regulatory standards (use of biofuels) (Law No. 9876/2008)	+0,25	$(+0,25+0,25+0,5-0,25-0,25)/5 = +0,10$
		-	Economic instruments (Carbon fee) (Laws No. 9975/2008 and No. 9975/2011)	+0,25	
		Energy efficiency	Performance standards (traffic management)	+0,5	
		Energy efficiency	Economic instruments – Subsidy/tax exemptions (Proposed)	-0,25	
		Energy efficiency	Dissemination – Awareness (Proposed)	-0,25	
	Energy	Promotion of RES technologies	Economic instruments - Subsidy (Feed-in-tariffs, tax exemptions) (Law No. 8987/2002, Government Decree No.27/2007, new Draft Law)	-0,25	$(-0,25-0,75-0,25)/3 = -0,417$
		Promotion of RES technologies	Regulatory standards (Command and control) (Green certificates – Guarantees of origin) (new Draft Law – Planned)	-0,75	
		Promotion of RES and EE technologies	Economic instruments (Tradable permits) (Proposed)	-0,25	
	Agriculture	Fuel switch	Regulatory standards (use of biofuels) (Proposed)	+0,25	+0,25
	Adaptation				
	Water management		Prevention of risk	-1/6	$(-1/6 - 1/6)/2 = -1/6$
			Awareness	-1/6	
	Forest management		Prevention of risk	-1/6	-1/6



Table 8: Mean CEI for each sector depending on the selected policy instruments of the PES scenario.

Mitigation					
Scen.	Sector	Technological options	Policy instrument	CEI	Mean CEI
PES	Buildings	Energy management	Performance standards (energy audits, metering of energy consumption, energy efficiency standards, certificate performance) (Law No. 9379/2005 and Law No. 10119/2009, Planned)	-5,75	$(-5,75-1,5-0,75-2,5)/4 = -2,625$
		Energy efficiency	Energy Building Code - Building isolation requirements (Law No. 8937/2002, Directive 2010/31/EU)	-1,5	
		Energy management	Economic instruments (Subsidy, tax rebates, loans) (Law No. 9379/2005)	-0,75	
		Energy efficient appliances	Energy labeling for appliances (Law No. 9379/2005 and Law No.10113/2009, Directive 2010/30/EC)	-2,5	
	Industry	-	-	-	-
	Transport	Fuel switch	Regulatory standards (use of biofuels) (Law No. 9876/2008)	+0,25	$(+0,25+0,25+0,5-0,25)/5 = +0,15$
		-	Economic instruments (Carbon fee) (Laws No. 9975/2008 and No. 9975/2011)	+0,25	
		Energy efficiency	Performance standards (traffic management) (Proposed)	+0,5	
		Energy efficiency	Economic instruments – Subsidy/tax exemptions (Proposed)	-0,25	
	Energy	Promotion of RES technologies	Economic instruments - Subsidy (Feed-in-tariffs, tax exemptions) (Law No. 8987/2002, Government Decree No.27/2007, new Draft Law)	-0,25	$(-0,25-0,75-0,25)/3 = -0,417$
		Promotion of RES technologies	Regulatory standards (Command and control) (Green certificates – Guarantees of origin) (new Draft Law – Planned)	-0,75	
		Promotion of RES and EE technologies	Economic instruments (Tradable permits) (Proposed)	-0,25	
	Agriculture	Fuel switch	Regulatory standards (use of biofuels) (Proposed)	+0,25	+0,25
	Adaptation				
		-	-	-	-

For **dynamic cost efficiency** – technological improvements are encouraged more in the OPT scenario compared to other two scenarios. In OPT there is promotion of biomass and wind onshore. Hydro is already a mature technology for the country which is used in all scenarios. Solar energy is used in the OPT and PES scenario mainly for the household sector. Until now (situation under the BAU scenario) this type of RES was not used because of unaffordable prices for the private sector and households (AgriPolicy, 2009). Solar systems in Albania are almost entirely imported; mostly bought by few specialized companies (AgriPolicy, 2009). That is why they are considered expensive, and used only as partial solution (hot water for technical use, not heating) (AgriPolicy, 2009). The new Draft Law for the promotion of RES – described in the OPT scenario - sets feed in tariffs that intend to support the development of the PV market which does not exist under the BAU scenario (AgriPolicy, 2009).

No research efforts for other RES technologies are promoted in any scenario. The assigned grades are: BAU – 4, Opt – 5, Pes – 4.

For **competitiveness** – The economy depends mainly on emigrant annual remittances, services and the agricultural sector, although the country is rich to natural resources including hydroelectric power potential, fertile agricultural land and valuable mining deposits (PWC, 2011).

Among the specific problems that the Albanian agricultural sector faces are the insufficient irrigation and the drainage system, and the low level of technologies in use (European Commission, 2012; Ministry of Agriculture, Food and Consumer Protection, 2011). Exports of this sector will probably be reduced and imports will increase due to the lack of the necessary policy instruments in BAU and PES scenario for this sector and for water management. In the OPT scenario the situation is slightly better, but needs policy instruments to address not only the adaptation needs of this sector, but also the other problems that it faces (Ministry of Agriculture, Food and Consumer Protection, 2007).

In the Pes scenario Agriculture, Transport, Energy sector will be mostly affected in their GDP distribution share. Due to less water for use, the energy sector will need to adapt more drastically since the majority of the produced electricity comes from hydro. Simultaneously the agricultural sector will need to restrict production or change types of products.

As for attracting investors through CDM projects, the country does not offer opportunities in the BAU scenario. The country has so far no significant investments in CDM compared to other non-Annex B countries according to the recorded pipeline of CDM projects (UNEP-Risoe, 2012¹).

Investments in RES projects from foreign private capitals are not mentioned in relevant national reports². Particularly for the promotion of wind power in Albania, there is lack of consecutive measurements of the velocity and duration of the wind (AKBN, 2010). Consequently, various foreign companies willing to invest in this type of RES need to make a prior assessment of the records of the wind velocity and duration (AKBN, 2010). Additionally, foreign investors under the BAU policy portfolio are reluctant to invest in RES and energy efficiency projects (see session about the main characteristics of the BAU scenario – pages 27-28 of this report). Even with an improved policy portfolio compared to that of the BAU scenario, the PES scenario will not be able to have a better performance under this sub-criterion because of the worse expected climate change impacts.

The assigned grades are: BAU – 3, OPT – 5, PES - 3.

For **equity** – Taking into consideration the need to compare the scenarios under a regional level the ratio GHG emission reductions in MtCO_{2eq} to capita is calculated for each scenario.

¹ <http://www.cdmpipeline.org/>

² There are a few RES pilot projects developed by donors (such as World Bank, EBRD, KfW, UNDP). Private sector projects concern few small hydro power plants (USAID, 2009).



The larger the ratio is the fairer is the scenario in sharing the burden among the sectors. In the OPT scenario almost all sectors participate except for the service sector in contributing to emission reductions.

Table 9: Equity measurements for Albania.

Scenario	Total amount of GHG emissions (MtCO _{2eq}) in 2020	Reductions compared to year 2000	Population in 2020	Ratio reductions tCO _{2eq} per capita
BAU	5,816	0	3,294	0,000
OPT	4,942	0,874	3,294	0,265
PES	5,808	0,008	3,294	0,003

For **flexibility** the scenarios are compared towards the incentives and the options that they offer to target groups. The OPT scenario offers more options (subsidies, soft loans, tax exceptions) compared to PES, which in turn has more options compared to BAU. However, the carbon fee (transport sector) as a command and control policy instrument is not flexible, so it restricts the options of the sector in all scenarios. So, BAU – 4, Opt – 6, Pes – 5.

For **stringency for non-compliance** – there were no descriptions or available information about the rules/influencing mechanisms of the policy instruments that are already implemented. Penalties, sanctions, fees, charges and other similar rules/influencing mechanisms that refer to the entities that do not comply with their obligations are not used by the Albanian government. The mandatory obligations for RES and energy efficiency in buildings are positive elements for the OPT and the PES scenario. The assigned grades for the performance of the policy portfolios of the scenarios are: BAU – 4, Opt – 5, Pes – 5.

Name of evaluated country		Albania						
Name of criterion		Political acceptability						
Grades for Political acceptability		Grades for first subcriterion	Grades for second subcriterion	Grades for third subcriterion	Grades for fourth subcriterion	Grades for fifth subcriterion	Grades for sixth subcriterion	
Instrument 1:	BAU	8.740	0.000	5.060	1.894	0.000	0.975	0.811
Instrument 2:	OPT	81.355	47.300	8.080	4.713	17.500	2.467	1.295
Instrument 3:	PES	26.768	16.765	5.060	1.894	0.198	1.557	1.295
Instrument 4:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instrument 5:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instrument 6:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instrument 7:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instrument 8:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instrument 9:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instrument 10:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instrument 11:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instrument 12:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instrument 13:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instrument 14:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instrument 15:	_	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Figure 3: Grades for political acceptability for Albania.

Criterion 3: Feasibility of implementation

For the **implementation network capacity** - The existing implementation network does not provide the necessary information for climate change policy issues in the country. There is need for capacity building so as to improve climate change policy making and enforcement,

together with inter-institutional cooperation and coordination (Government Offices of Sweden, 2009).

There is limited number of official reports regarding climate change policy issues for the country. The published reports of certain national entities (such as AKBN, ERE) are not updated. For the Albanian Energy Regulator the last annual report is of 2011.³ The web-sites are not user friendly and the information is not directly accessible. Users need to devote time in searching for the information that he/she needs. For the Ministry of Economy, Trade and Energy information for legislation and monitoring reports are “Under Construction^{4, 5}”.

The following entities form the Albanian implementation network:

- Ministry of Economy, Trade and Energy⁶;
- Ministry of Environment, Forests and Water Administration⁷;
- Natural Agency of Natural Resources⁸;
- Albanian Energy Regulator⁹; (its institutional capacity needs further strengthening and its independence is limited (EBRD, 2012));
- Albanian Power Corporation¹⁰.

The Climate Change Unit¹¹ of the Ministry of Environment is the Albanian Designated National Authority (DNA), but without a relevant web-site to offer information for potential investors. For implementing a stricter national climate policy the implementation network needs to be reinforced, educated and to increase its capacity building.

The Institute of Energy, Water and Environment requires additional capacity to produce adequate local scale projections of climate change and climate variability (UNDP/WMO, 2011)

The existing implementation network that is responsible for the policy portfolio of BAU scenario has already a poor performance according to the information quoted in the “Description of the BAU scenario”. This implementation network if it is not improved it will not be capable to implement the policy portfolio of the PES scenario and much more that of OPT. Both scenarios require an implementation network with reinforced knowledge, skills and expertise. For BAU the assigned grade is 4, for OPT 3 and PES 3.

For **administrative feasibility** - the scenarios have again poor performance. The existing policy portfolio is not characterized by readiness in achieving its tasks. The time interval between the first and the second National Communication to UNFCCC was seven (7) years (2002 and 2009¹²). This is a considerable time interval taking into account that UNDP offered assistance¹³. The necessary legislation for climate change issues is delayed in being designed and further to that in being implemented.

Regarding investments in RES the Government of Albania made efforts to support the development incentives of the private sector by improving the legal framework, simplifying the administrative procedure for investors and guaranteeing a transparent and non-

³ <http://www.ere.gov.al/mat.php?idr=184&idm=243&lang=2>

⁴ <http://www.mete.gov.al/error.php?idr=2&lang=2>

⁵ <http://www.mete.gov.al/error.php?idr=535&lang=2>

⁶ <http://www.mete.gov.al/>

⁷ <http://www.moe.gov.al/en/>

⁸ <http://www.akbn.gov.al/index.php?&lng=en>

⁹ <http://www.ere.gov.al/index.php?lang=2>

¹⁰ <http://www.kesh.al/content.aspx?id=18>

¹¹ <http://cdm.UNFCCC.int/DNA/view.html?CID=2>

¹² http://UNFCCC.int/national_reports/non-annex_i_natcom/items/2979.php

¹³ <http://www.ccalb.org>



discriminated process for the interested subjects (AKBN, 2010b). However, the need of an improved regulatory framework remains (EBRD, 2012).

Due to a more complicated policy portfolio in OPT, the administrative burden will increase compared to BAU. In PES the administrative burden is equal to OPT because of the expected worse impacts of climate change. The country is not prepared to handle in an administrative level the consequences of floods, heat waves and frost days immediately after their occurrence.

The assigned grades are: BAU 4, Opt 3, Pes 3.

For **financial feasibility** - Limited financial incentives for the policy instruments of the BAU scenario and the existence of donors are the two elements that characterize a rather sufficient performance under this sub-criterion. EBRD through its updated “Strategy for Albania” will: i) assist the Albanian Power Corporation (KESH) so as to improve its financial viability and stability, by providing long-term loans for the safety, maintenance and upgrading of its generation utilities as well as for a possible restructuring of its operations (EBRD, 2012); ii) continue to implement the WeBSEFF/WeBSEDF frameworks for the financing of RES and energy efficiency projects by extending support to private concessionaires and companies implementing energy savings (EBRD, 2012). Bilateral donors (Sweden, Italy) are active and important partners for Albania (EBRD, 2012). They provide grant funds or soft loan financing, and assist sectors with lower cost-recoverability (EBRD, 2012).

However, foreign investments for climate change policy projects can become significant revenue for the government so as to proceed with a better monitoring, management and support towards relevant issues. The introduction of a levy and a better policy framework for CDM projects may improve the situation. This is more likely to happen under the OPT scenario.

The grades are: BAU 4, Opt 5, Pes 4.

Name of evaluated country		Feasibility of implementation			
Name of criterion		Feasibility of implementation	Grades for first sub-criterion	Grades for second sub-criterion	Grades for third sub-criterion
			0.309	0.581	0.110
Instrument	BAU	42.039	13.534	25.447	3.058
Instrument	OPT	29.893	8.683	16.327	4.883
Instrument	PES	28.068	8.683	16.327	3.058
Instrument 4:	_	0.000	0.000	0.000	0.000
Instrument 5:	_	0.000	0.000	0.000	0.000
Instrument 6:	_	0.000	0.000	0.000	0.000
Instrument 7:	_	0.000	0.000	0.000	0.000
Instrument 8:	_	0.000	0.000	0.000	0.000
Instrument 9:	_	0.000	0.000	0.000	0.000
Instrument 10:	_	0.000	0.000	0.000	0.000
Instrument	_	0.000	0.000	0.000	0.000
Instrument	_	0.000	0.000	0.000	0.000
Instrument	_	0.000	0.000	0.000	0.000
Instrument	_	0.000	0.000	0.000	0.000
Instrument 14:	_	0.000	0.000	0.000	0.000
Instrument 15:	_	0.000	0.000	0.000	0.000

Figure 4: Grades for feasibility of implementation.

Results of AMS

The final grades obtained by using the ClimAMS-2012 software are shown in the figure 91.

Name of evaluated country: Albania
Score of best aggregate performance: 79.650

Name		Final grade	Name		Final grade
Instrument 1:	BAU	10.402	OPT	79.650	
Instrument 2:	OPT	79.650	PES	23.703	
Instrument 3:	PES	23.703	BAU	10.402	
Instrument 4:	-	0.000	-	0.000	
Instrument 5:	-	0.000	-	0.000	
Instrument 6:	-	0.000	-	0.000	
Instrument 7:	-	0.000	-	0.000	
Instrument 8:	-	0.000	-	0.000	
Instrument 9:	-	0.000	-	0.000	
Instrument 10:	-	0.000	-	0.000	
Instrument	-	0.000	-	0.000	
Instrument 12:	-	0.000	-	0.000	
Instrument	-	0.000	-	0.000	
Instrument	-	0.000	-	0.000	
Instrument	-	0.000	-	0.000	

Figure 5: Final grades for 3-scenarios for Albania

The results for each scenario are presented in Table 15.

Table 10: AMS results for each scenario.

Criteria	Scenarios		
	BAU	Optimistic	Pessimistic
Direct contribution to GHG emission reductions (0,833)	0,000	83,300	0,762
Indirect environmental effects (0,167)	0,000	16,700	7,032
Environmental performance (0,168) - A	0,000	100,000	7,794
Cost efficiency (0,474)	0,000	47,300	16,765
Dynamic cost efficiency (0,183)	5,060	8,080	5,060
Competitiveness (0,085)	1,894	4,713	1,894
Equity (0,175)	0,000	17,500	0,198
Flexibility (0,051)	0,975	2,467	1,557
Stringency for non-compliance (0,032)	0,811	1,295	1,295
Political acceptability (0,738) - B	8,740	81,355	26,768
Implementation network capacity (0,309)	13,534	8,683	8,683
Administrative feasibility (0,581)	25,447	16,327	16,327
Financial feasibility (0,110)	3,058	4,883	3,058
Feasibility of implementation (0,094) - C	42,039	29,893	28,068
Total (A+B+C)	10,402	79,650	23,703

Comments

The results for each scenario are presented in Table 15. The final grades demonstrate that OPT has the best performance in achieving the objectives of the Albanian climate change policy taking into consideration the national framework. However, it has specific weaknesses under the criterion “feasibility of implementation”.

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CONCLUSIONS

This report concerns the development and assessment of three (3) climate change mitigation and adaptation policy scenarios for Albania. Each of them is characterized by a different policy portfolio and is named after it as Business As Usual (BAU), Optimistic (OPT) and Pessimistic (PES).

All scenarios take into consideration the following national objectives for the share of RES in the electricity generation for the year 2017: i) 1,5% from wind energy usage and ii) 3,3% from small hydro power. For the implementation of Directive 2009/28/EC the respective RES target for year 2020 is calculated at 36% of RES in gross final energy consumption. Also, Albania aims at energy savings of 3% in 2012 and 9% in 2018, in comparison with the average of the total final energy consumption for the time period 2004 – 2008.

BAU scenario

The BAU scenario concerns the time evolution of the already implemented mitigation and adaptation policy instruments (set into force before 31 December 2010) in Albania until the year 2050 and serves as the reference against which the outcomes of the other scenarios are compared.

The currently implemented Albanian mitigation policy has two main components: i) penetration of RES and ii) support to energy efficiency. There are no adaptation policy instruments.

Regarding the 2020 use of RES in gross final energy consumption target and according to the LEAP results, the BAU scenario is not achieving or coming close to achieving the target of 36%, with a 15,25% use of RES in gross final energy consumption in 2012, moving up only to 16,22% use in 2020, with no implemented policy instruments.

The 3% target of energy savings, in comparison with the average of the total final energy consumption, for the period 2004 – 2008 is not achieved in 2012 (there is an expected increase of 4%). In 2018 instead of a 9% decrease of energy consumption target there is a 17,34% increase.

The expected share of RES in the electricity generation in 2017 is achieved partially, according to the data used for the development of this scenario. More specifically small hydro power contributes by 6% against the 3,3% target, but the use of wind power remains 0%.

OPT scenario

The Optimistic scenario concerns the time evolution of an enhanced mitigation/adaptation policy portfolio that Albania will implement during the time interval 2011 - 2050. This enhanced policy portfolio takes into account the policy instruments adopted after 1st January 2011 as well as plans of the country and supports: i) the introduction of efficient technologies in almost all sectors and deforestation through CDM, targeting to the maximum reduction of GHG emissions through the maximum exploitation of the potential of the country in energy efficiency and renewable energy sources and ii) the necessary infrastructure for the adaptation of the country towards the minimum – in size and extent - expected climate change impacts.

According to LEAP analysis results, the OPT scenario, although presents better results, still does not reach the 2020 RES target, presenting a 17,38% use of RES in gross final energy consumption, instead of the 36%.

As in BAU scenario, the energy saving target is not achieved, with an increase of energy consumption by 3,36% in 2012, against the targeted 3% reduction and in 2018, there is an increase of 8,26% against the targeted 9% decrease.



Regarding the share of RES in the electricity generation in 2017, OPT scenario covers the target of using the wind power with a 28%, against the 1,5% of the target and also exceeds the use of small hydro power, since it is used by 6,2%, against the 3,3% of the target.

PES scenario

The Pessimistic scenario concerns the time evolution of an enhanced mitigation/adaptation policy portfolio that Albania will implement during the time interval 2011 – 2050, taking into account the policy instruments adopted after 1st January 2011 and no other additional policy instruments, apart from those already decided to be implemented and in line with the EU climate change policy. It exploits the minimum of the potential of the country in energy efficiency and renewable energy sources, by limiting the possible technological options to these with the highest potential in energy efficiency and the most promising for Albania, types of RES (hydropower and wind power).

Given that the country has not approved any policies beyond 2020, it is assumed in this scenario, that the ones adopted before 2020 will be extended until 2050, as well as that minimum additional policies will be enforced after 2020. Despite the huge needs of adaptation (driven by the high global GHG emission levels and the related temperature changes), only the planned adaptation measures will be implemented.

Following the above, and according to the LEAP analysis, the PES scenario achieves a 16,22% use of RES in gross final energy consumption, instead of the target's 36%. The energy saving target is again not achieved, with a 4,25% increase in 2012, against the 3% reduction of the target and a 12,99% increase against the intended 9% reduction of 2018.

The PES scenario, same like OPT is achieving the target of 2017 share of RES in electricity generation in both sectors, although with lower percentages (use of wind power 17% and use of small hydro power 3%).

Assessment outcomes¹⁴

Using the multicriteria method AMS, the three (3) policy portfolios were assessed against their environmental performance (amount of GHG emissions and secondary environmental effects), political acceptability (attitude of the involved entities (target groups) towards the relevant policy portfolio) and feasibility of implementation (applicability of the policy portfolio from the point of the governmental and national pertinent entities).

The BAU scenario is characterized by low environmental performance and political acceptability, especially in terms of cost efficiency and equity. However, it performs better compared to the other two scenarios in feasibility of implementation, due to better performance under administrative feasibility.

The OPT scenario is characterized by better environmental performance compared to the other two scenarios, and higher political acceptability, especially in terms of cost efficiency. Regarding the feasibility of implementation, the financial feasibility and the implementation network capacity do not appear to perform sufficiently (to be ready) for the suggested in the scenario policy mixture.

The PES scenario is characterized as a slightly best option than the BAU scenario, with low environmental performance, low political acceptability but relevant high feasibility of implementation, especially in the administrative feasibility.

However, regarding the feasibility of implementation, the BAU scenario presents better performance than the other two scenarios due to better implementation network capacity and administrative feasibility.

¹⁴ The assessment outcomes depend on the level of expertise of the person who makes the assessment as well as the degree of justification concerning the sub-criteria.



Given the above, the mitigation/adaptation policy portfolio which characterizes the Optimistic scenario is the one to achieve most of the goals of the climate change policy of Albania. Nevertheless, the success of this policy portfolio requires a more effective and capable implementation network.

In this report, the component of adaptation in climate change policy is not fully developed since the country hasn't set an adequate framework to reduce its vulnerability to climate change. Moreover, the design and assessment of relevant policy instruments require data related to the frequency of extreme events, water resources and use, low-income groups, biodiversity, the health sector, etc., which are not available at the moment.

Concluding, the scenarios of this report were developed under the same assumptions for the evolution of GDP and population for the period 2011-2050. In order to perceive the performance and applicability of the three (3) policy portfolios, the report should include six (6) more scenarios with the combinations "low population growth – high GDP growth" and "high population growth-low GDP growth", according to the socioeconomic frameworks presented in the IPCC pathways (new generation of IPCC scenarios).

