
Environment and Climate Regional Accession Network (ECRAN)

TAIEX - ECRAN Workshop on climate change modelling Module 3

11-12 April 2016, Tirana

ENVIRONMENTAL AND CLIMA REGIONAL NETWORK FOR ACCESSION - ECRAN

WORKSHOP REPORT

Activity No 3.1. SUBTASK 1.4-A

TAIEX - ECRAN WORKSHOP ON MODELLING: MODULE 3

**PRACTICAL HANDS ON ASSISTANCE ON QUANTITATIVE MODELS AND SCENARIO
DEVELOPMENT TO BE USED TO ASSESS CLIMATE AND ENERGY POLICY OPTIONS
AND TO SET EMISSION TARGETS**

11-12 April 2016, TIRANA, ALBANIA



This Project is funded by the
European Union



A project implemented by
Human Dynamics Consortium

Table of Contents

I.	Background/Rationale	1
II.	Objectives of the training	3
	General objectives	3
	Specific objectives.....	3
	Results/outputs	3
III.	EU policy and legislation covered by the training	5
IV.	Highlights from the training workshop.....	8
V.	Evaluation	9
	ANNEX I – Agenda.....	11
	ANNEX II – Participants.....	15
	ANNEX III – Exercises given to participants to be completed before module 4 which were reviewed during the workshop in Tirana	17
	ANNEX IV – Evaluation.....	20



LIST OF ABBREVIATIONS	
LEAP	Long-range Energy Alternatives Planning System
EE	Energy Efficiency
EED	Energy Efficiency Directive
EMF	Energy Modelling Forum
ESD	Effort Sharing Decision
EU	European Union
GHG	Greenhouse Gas
IEA	International Energy Agency
IEA DSM	International Energy Agency Demand Side Management Programme
LEDS	Low Emission Development Strategies
LULUCF	Land use, Land use change and Forestry
MS	Member State
NEEAP	National Energy Efficiency Action Plan
PAM	Policies and Measures
RES	Renewable Energy Sources
SEI	Stockholm Environment Institute
UNFCCC	United Nation Framework Convention on Climate Change



This Project is funded by the
European Union



A project implemented by
Human Dynamics Consortium

I. Background/Rationale

There is a need to start developing concrete climate policies based on full alignment with the EU Climate acquis and GHG emission reduction target setting. At present the absence of national or regional targets and roadmaps towards implementation of these targets hamper the development of robust climate policies in the region and thus low emission development. ECRAN has developed into the platform to start a regional work on this topic. Climate policy related strategy development as well as fulfilling the reporting requirements of Annex I countries towards the UNFCCC, similarly to the EU acquis requires detailed modelling of emission scenarios on country level.

In most ECRAN beneficiaries there is experience in modelling aided scenario work, especially in the framework of the preparations of National Communications. However, in many cases this work has been designed and outsourced by international organisations or other external organisations without adequate involvement or ownership of the results by the countries. As such, the knowledge base within the administrations on modelling aided scenario work is limited.

In terms of technical requirements, the focus of the training was on one specific modelling platform, the Long-range Energy Alternatives Planning System (LEAP) which has been developed by the Stockholm Environmental Institute. Of the eight beneficiaries, six are already using LEAP, and one (Kosovo*¹) has expressed interest in using it. The training program was organized into four modules and it was conducted during 2014 and 2016:

- Module 1 – Introduction to modelling techniques and assessing data needs for the base year;
- Module 2 – Development of a baseline (without measures) scenario;
- Module 3 – Development of with measures and with additional measures scenarios and sensitivity analysis;
- Module 4 – Gap analysis and identification of further technical capacity building needs

The modules 1 and 4 were organized back to back with Regional Training Workshops to ensure that capacity building of technical skills is delivered in combination with capacity building related to the selected EU Climate Acquis. This integrated delivery of capacity building related to policy and technical skills will increase the understanding of modelling as a policy tool which can promote policy-making based on evidence and analysis.

As the aim of the exercise was to increase capacity in public administrations, the tasks, as a general rule, targeted staff working at the public administration. In particular, the involvement of staff working on the climate, energy and transport policy in ministries, in providing technical support at government agencies and bodies, as well as staff, working at national statistical offices, was desirable. However, the heterogeneity of institutional arrangements for modelling among the ECRAN beneficiaries warrants a flexible approach in selecting the target audience of the trainings and follow-up activities. In some cases the national public administrations are working together closely with academia and prefer the continuation of existing working arrangements. In addition, although a general focus of capacity building activities on the public administrations seems to be the preferred option, low levels

¹ *This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ opinion on the Kosovo declaration of independence.



of capacity and overburdened staff may be an obstacle to active participation in trainings and follow-up activities. In such cases targeting academia in addition to staff of public administrations may be a better solution than inadequate participation on behalf of some of the beneficiaries.

To ensure active participation, ECRAN beneficiaries were asked to commit that the experts nominated for the bottom-up exercise are allowed sufficient time for carrying out the work required under the different tasks, including attending seminars and conducting the follow-up activities. Experts from the beneficiaries were expected to spend 12 days participating in workshops, and a minimum of 15 days in follow-up activities implementing the regional pilot modelling exercise. The ECRAN team has monitored work progress to ensure that the exercise, which requires a significant commitment, has been advancing as foreseen.



This Project is funded by the
European Union



A project implemented by
Human Dynamics Consortium

II. Objectives of the training

General objectives

The **wider** objective is to strengthen regional cooperation between the EU candidate countries and potential candidates in the fields of climate action and to assist them on their way towards the transposition and implementation of the EU climate policies as a key precondition for EU accession.

Specific objectives

The specific objective of the training program is to increase technical capacities in the countries to allow them to carry out modelling of emission scenarios. The modelling aided scenario work will benefit countries by helping them meet their future EU and UNFCCC reporting requirements, and to form a rational position on national efforts contributing to the EU 2050 roadmap and the 2030 Framework. It may also assist them by promoting evidence based planning in energy policy, including development of an energy strategy, energy efficiency action plan and a renewable energy action plan.

Depending on the circumstances of the national public administrations and their future plans to build modelling capacity inside or outside the public administration, the technical modelling skills can be used in one of two ways. If the chosen option is to carry out modelling work within the public administration the exercise will help building technical capacity and will provide a basis for future work. If the chosen option is to outsource modelling work, the exercise can help beneficiaries gain a better understanding of modelling work which will enable better communication with consultants, thereby ensuring that modelling is relevant to policymakers and that policymakers understand the limits of the work and are able to better interpret the results.

Results/outputs

The following results are expected from the exercise:

- Enhanced technical capacity within the relevant ministries and institutions (in particular ministries responsible for climate, energy, transport, as well as national statistical offices) to model specific policies and measures to converge with the EU climate change policy and selected EU legislation;
- Strengthened regional network of experts.

The first four-day long meeting was organized in Skopje in November 2014 and aimed to give an introduction to the participants to the policy environment, give an introductory training on LEAP as well as provide initial steps in filling the LEAP structure with country relevant data, building up the basic model. Two more trainings followed with a final one yet to happen, including homework that was given within the yearlong program.

Aim of the workshop in Tirana (11-12 April 2016)

The first four-day long meeting was organized in Skopje in November 2014 and aimed to give an introduction to the participants to the policy environment, give an introductory training on LEAP as well as provide initial steps in filling the LEAP structure with country relevant data, building up the



This Project is funded by the
European Union



A project implemented by
Human Dynamics Consortium

basic model. The second workshop was organised in Istanbul on 26-28 May 2015 and aimed to further build analytical capacity of participants. The focus of the training was on the definition of scenario types, definition and reporting on policies and measures, projections of drivers of future emissions, costs of technologies. The third workshop, held in Zagreb, aimed to further increase the knowledge of participants on scenario development and on cost-benefit analysis of the different scenarios.

In order to provide support for those participants of the training programme for the completion of Module 3 homework, a need for additional support was identified for the beneficiaries from Albania. It is necessary to complete this workshop before the start of the fourth module of the training program (April 2016) in order to have a comparable progress in the homework. Also a separate training, with smaller number of participants allows for more interactive hands-on exercises than the general training programme with nearly 30 participants. The training is provided by ECRAN and TAIEX experts engaged in the year long program.

The beneficiaries of the training are the Ministries of Environment of the beneficiary countries who participated in the Module 2 training. Other participants are not accepted as prior knowledge of the LEAP modelling platform is a prerequisite of participation.



This Project is funded by the
European Union



A project implemented by
Human Dynamics Consortium

III. EU policy and legislation covered by the training

Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC. This regulation lays down a mechanism for monitoring and reporting GHG emissions and for reporting other information at national and EU level relevant to climate change. These provisions also apply to:

- Reporting on the EU and its MS low-carbon development strategies;
- GHG emissions from sectors and sources and the removals by sinks covered by the national GHG inventories;
- GHG emissions;
- The non-CO₂ related climate impacts, which are associated with emissions from civil aviation;
- the EU and its MS's projections of anthropogenic emissions by sources and removals by sinks of GHG not controlled by the Montreal protocol, and the MS' policies and measures relating thereto;
- MS' actions to adapt to climate change.

The 2030 Framework for climate and energy policies

EU leaders agreed on 23 October 2014 to the internal 2030 greenhouse gas reduction target of at least 40% compared to 1990 together with the other main building blocks of the 2030 policy framework for climate and energy, as proposed by the European Commission in January 2014. This 2030 policy framework aims to make the European Union's economy and energy system more competitive, secure and sustainable and also sets a target of at least 27% for renewable energy and energy savings by 2030.

While the EU is making good progress towards meeting its climate and energy targets for 2020, an integrated policy framework for the period up to 2030 is needed to ensure regulatory certainty for investors and a coordinated approach among Member States.

The framework presented will drive continued progress towards a low-carbon economy. It aims to build a competitive and secure energy system that ensures affordable energy for all consumers, increases the security of the EU's energy supplies, reduces our dependence on energy imports and creates new opportunities for growth and jobs.

- Reducing greenhouse gas emissions by at least 40%

A centre piece of the framework is the binding target to reduce EU domestic greenhouse gas emissions by at least 40% below the 1990 level by 2030.

This target will ensure that the EU is on the cost-effective track towards meeting its objective of cutting emissions by at least 80% by 2050. By setting its level of climate ambition for 2030, the EU will also be able to engage actively in the negotiations on a new international climate agreement that should take effect in 2020.

To achieve the overall 40% target, the sectors covered by the EU emissions trading system (EU ETS) would have to reduce their emissions by 43% compared to 2005. Emissions from sectors



outside the EU ETS would need to be cut by 30% below the 2005 level. This will need to be translated into Member State targets. The European Council has outlined the main principles to achieve this.

- Increasing the share of renewable energy to at least 27%

Renewable energy will play a key role in the transition towards a competitive, secure and sustainable energy system. The Commission proposed an objective of increasing the share of renewable energy to at least 27% of the EU's energy consumption by 2030. The European Council endorsed this target which is binding at EU level.

- Increasing energy efficiency by at least 27%

The European Commission proposed a 30% energy savings target for 2030, following a review of the Energy Efficiency Directive. The proposed target builds on the achievements already reached: new buildings use half the energy they did in the 1980s and industry is about 19% less energy intensive than in 2001. The European Council, however, endorsed an indicative target of 27% to be reviewed in 2020 having in mind a 30% target.

- Reform of the EU emissions trading system

The EU ETS will be reformed and strengthened. A 43% greenhouse gas reduction target in 2030 in the ETS translates into a cap declining by 2.2% annually from 2021 onwards, instead of the rate of 1.74% up to 2020.

In January 2014 the Commission proposed to establish a market stability reserve from 2021 onwards. This is to address the surplus of emission allowances in the EU ETS that has built up in recent years and to improve the system's resilience to major shocks. This will ensure that in the future the EU ETS is more robust and effective in promoting low-carbon investment at least cost to society.

The European Council underlined that a reformed, well-functioning ETS with an instrument to stabilise the market in line with the Commission's proposal will be the main instrument to achieve greenhouse gas emission reductions.

- New governance system

The 2030 framework proposed a new governance framework based on national plans for competitive, secure and sustainable energy as well as a set of key indicators to assess progress over time. The European Council agreed that a reliable and transparent governance system will be developed to help ensure that the EU meets its energy policy goals.

Effort Sharing

The current Effort Sharing Decision (Decision No 406/2009)) establishes binding annual greenhouse gas emission targets for Member States for the period 2013–2020. These targets concern emissions from most sectors not included in the EU Emissions Trading System (EU ETS), such as transport (except aviation and international maritime shipping), buildings, agriculture and waste. In the framework of the Effort Sharing Decision the sectors covered by the EU Emissions Trading System (EU ETS) would



have to reduce their emissions by 30% compared to 2005. Emissions from sectors outside the EU ETS would need to be cut by 10% below the 2005 level.

In the framework of the 2030 Framework, the sectors covered by the EU Emissions Trading System (EU ETS) would have to reduce their emissions by 43% compared to 2005. Emissions from sectors outside the EU ETS would need to be cut by 30% below the 2005 level. This will need to be translated into Member State targets using the same methodology as in the current Effort Sharing Decision (Member State targets will vary between 0% -40%; Current GDP data will be updated; Member States with GDP/capita above the EU average: targets will be adjusted with cost effectiveness). The European Council agreed in October 2014 that a reliable and transparent governance system will be developed to help ensure that the EU meets its energy policy goals.



This Project is funded by the
European Union



A project implemented by
Human Dynamics Consortium

IV. Highlights from the training workshop

The workshop did not include presentations but had a dialogue format. The Albanian participants demonstrated the model they had prepared as part of the homework. The model included all demand sectors as well as the electricity supply sector. It was most elaborate for the buildings sector, but had more aggregated level information for other sectors such as industry and transport. The Albanian team presented difficulties they had had in completing the energy model for Albania. These are related in part to the need to further develop modelling skills, and in part to a lack of reliable data. The need to improve data reliability as a basis for future modelling work was discussed.

In line with the agenda, the following activities took place over the course of the workshop:

- Check of the demand sectors (residential, services, transport, industry, other) in LEAP tree and the necessary historical data for current accounts.
- Check of the transformation sectors (mainly transmission and distribution, electricity sector) in LEAP tree and the necessary historical data for current accounts.
- Checking of the overall energy balance figures for the base year
- Identification of future drivers and trends and modelling of a baseline scenario
- Selection of at least two sectors on which HAM scenario will be focused: buildings and transport sector
- Assessment of energy efficiency and renewable energy potential in the transport and buildings sector via the development of a high ambition mitigation (HAM) scenario
- Demonstration of results by running LEAP and discussion



V. Evaluation

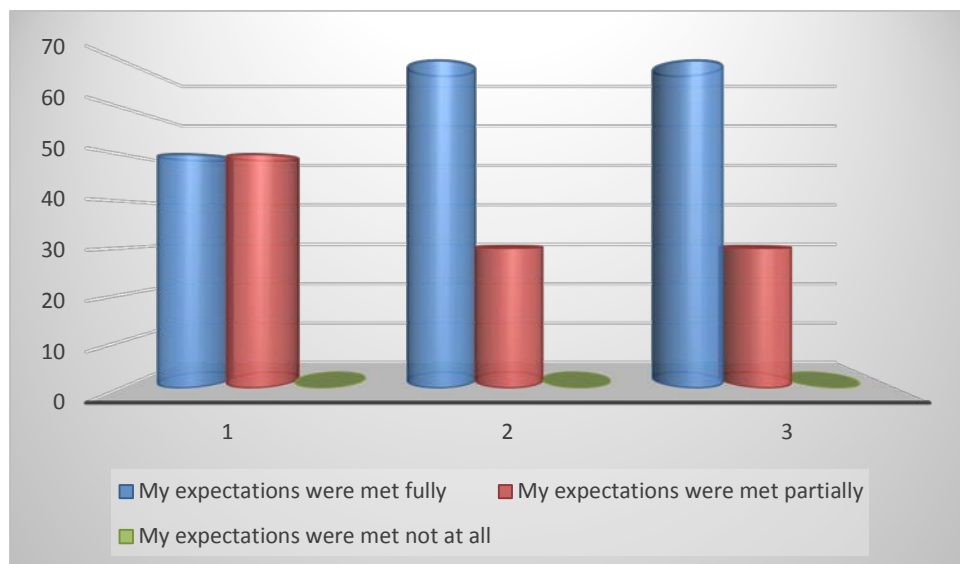
Reference is made to Annex IV for the detailed evaluation.

In the evaluation of the aspect 'the workshop helped us for building technical capacities to carry out modelling of emission scenarios' half of the participants indicated that their **expectations were fully met**, whereas the other half indicated it was partially met. In the areas of increased understanding of modelling work and whether the workshop gave a proper catch up on LEAP as well as providing the initial steps in filling the LEAP structure with country relevant data, building up the basic model, about **70% indicated** that these aspects were fully met.

Over 80% of the evaluation scores regarding the quality aspects of the workshop such as achieved objectives, overall quality, practical work, presentations, facilitators, obtained the marks 'good' to 'excellent'. The aspect on the duration had a significantly lower score than the other aspects. All participants indicated that they found the workshop 'time well spent'.

My Expectations

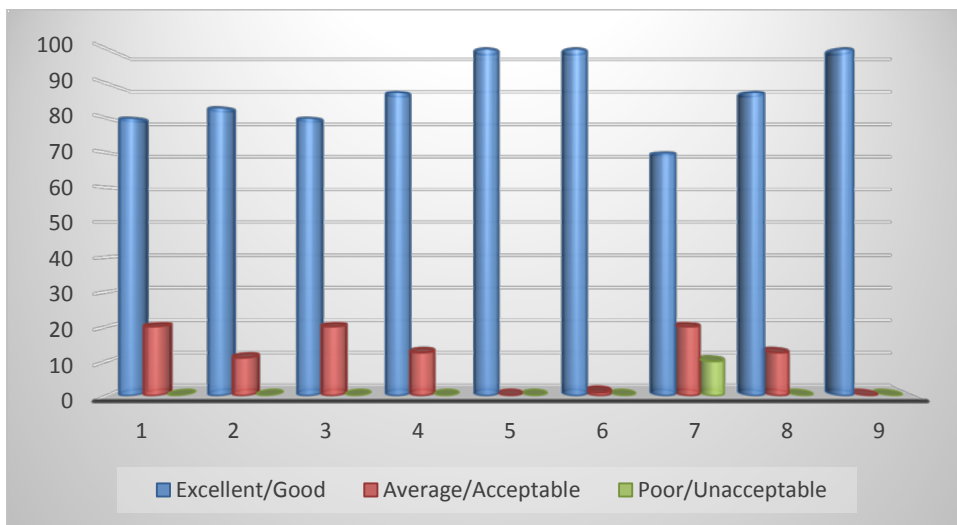
1. The workshop helped us for building technical capacities to carry out modelling of emission scenarios
2. The workshop helped us to gain a better understanding of modelling work which will enable us to ensure that (future) modelling is relevant to policymakers and that policymakers understand the limits of the work and are able to better interpret the results
3. The workshop gave us a proper catch up on LEAP as well as providing the initial steps in filling the LEAP structure with country relevant data, building up the basic model.



Workshop and Presentation

Aspect of Workshop

1. The workshop achieved the objectives set
2. The quality of the workshop was of a high standard
3. The content of the workshop was well suited to my level of understanding and experience
4. The practical work was relevant and informative
5. The workshop was interactive
6. Facilitators were well prepared and knowledgeable on the subject matter
7. The duration of this workshop was neither too long nor too short
8. The logistical arrangements (venue, refreshments, equipment) were satisfactory
9. Attending this workshop was time well spent



This Project is funded by the
European Union



A project implemented by
Human Dynamics Consortium

ANNEX I – Agenda

Monday 11 April 2016

Topic: Revisiting and Revision of Module 2 homework and reference scenario building for Albania				
Chair: Jozsef Feiler				
Start	Finish	Topic	Speaker	Sub topic/Content
08:30	09:00	Registration		
9.00	9.15	Introduction	József Feiler, ECRAN	
9.15	9.30	Description of ECRAN homework	Alexandra Novikova-Rodi, ECRAN	<ul style="list-style-type: none"> Description of Module 2 and 3 exercises and the relevant requirements for Tasks 1 and 2.
9.30	10.00	Progress review	Albanian beneficiaries	<ul style="list-style-type: none"> Presentation of work already completed by the beneficiary team and the relevant problems.
10.00	10.45	Revision of Module 2 homework (demand sectors in current accounts)	Eleni-Danai Mavraki, Ágnes Kelemen, Alexandra Novikova-Rodi, ECRAN	<ul style="list-style-type: none"> Check of the demand sectors (residential, services, transport, industry, other) in LEAP tree and the necessary historical data for current accounts. Respective modifications/improvements Data collection
10.45	11.00	Coffee Break		
11.00	11.30	Revision of Module 2 homework (demand sectors in current accounts)	Eleni-Danai Mavraki, Ágnes Kelemen, Alexandra Novikova-Rodi, ECRAN	<ul style="list-style-type: none"> Check of the demand sectors (residential, services, transport, industry, other) in LEAP tree and the necessary historical data for current accounts. Respective modifications/improvements Data collection



11.30	12.30	Revision of Module 2 homework (transformation sectors in current accounts)	Eleni-Danai Mavraki, Ágnes Kelemen, Alexandra Novikova-Rodi, ECRAN	<ul style="list-style-type: none"> • Check of the transformation sectors (mainly transmission and distribution, electricity sector) in LEAP tree and the necessary historical data for current accounts. • Respective modifications/improvements • Data collection
13.00	14.00	Lunch Break		
14.00	14.30	Fine-tuning of Albanian LEAP dataset	Ágnes Kelemen, ECRAN	<ul style="list-style-type: none"> • Check the energy balances for the years 2005-2011 in LEAP.
14.30	15.45	Creation of reference scenario for Albania	Ágnes Kelemen, Alexandra Novikova-Rodi, Eleni-Danai Mavraki, ECRAN	<ul style="list-style-type: none"> • Identification of necessary assumptions related to future trends in drivers. • Search of relevant sources.
15.45	16.00	Coffee Break		
16.00	17.00	Running of reference scenario	Eleni-Danai Mavraki, Ágnes Kelemen, Alexandra Novikova-Rodi, ECRAN	<ul style="list-style-type: none"> • Necessary adjustments. • Fixing of possible errors.



Tuesday 12 April 2016

Topic: Revisiting and completing Module 3 homework - HAM Scenario				
Chair: Jozsef Feiler				
Start	Finish	Topic	Speaker	Sub topic/Content
08:30	09:00	Registration		
9.00	10.00	Discussion on High Ambition Mitigation (HAM) scenario settings	Ágnes Kelemen, Alexandra Novikova-Rodi, ECRAN	<ul style="list-style-type: none"> • Selection of at least two sectors on which HAM scenario will be focused. • Investigate possible policy and technology options.
10.00	11.00	Develop HAM scenario in LEAP (1)	Eleni-Danai Mavraki, Alexandra Novikova-Rodi, ECRAN	<ul style="list-style-type: none"> • Search of national potential in RES/energy efficiency in national/international sources. • Search of relevant costing data.
11.00	11.15	Coffee Break		
11.15	12.00	Develop HAM scenario in LEAP (2)	Eleni-Danai Mavraki, Alexandra Novikova-Rodi, ECRAN	<ul style="list-style-type: none"> • Creation of different scenarios in LEAP (each scenario for each policy/technology option) with the necessary assumptions.
12.00	13.00	Run HAM scenario in LEAP	Eleni-Danai Mavraki, Alexandra Novikova-Rodi, ECRAN	<ul style="list-style-type: none"> • Synthesis of the different policy scenarios in HAM. • Fixing of possible errors.
13.00	14.00	Lunch Break		
14.00	15.00	Discussion on results	Eleni-Danai Mavraki, Ágnes Kelemen, Alexandra Novikova-Rodi, ECRAN	<ul style="list-style-type: none"> • Commenting on graphs of Final Energy Consumption, Electricity generation and Global Warming Potential. • Commenting on Cost-Benefit analysis.



				<ul style="list-style-type: none"> • Comparison with EU emission reduction targets.
15.00	16.30	Reporting requirements for Module 3 homework	Eleni-Danai Mavraki, Alexandra Novikova-Rodi ECRAN	<ul style="list-style-type: none"> • Presentation of the report structure for the Module 3 homework. • Support on writing the report.
16.30	17.00	Capacity building needs and gaps	Eleni-Danai Mavraki, Ágnes Kelemen, Alexandra Novikova-Rodi, ECRAN	<ul style="list-style-type: none"> • Initial discussion with the beneficiaries on further capacity building needs in their country in view of Module 4.



ANNEX II – Participants

First Name	Family Name	Institution Name	Country	Email
Alma	Saraci	Electricity Power Distribution Operator	Albania	almasaraci@gmail.com
Ardian	Islami	Ministry of Energy and Industry	Albania	Ardian.Islami@energjia.gov.al
Artut	Kurti	Electricity Power Distribution Operator	Albania	Artur.kurti@oshee.al
Bledi	Lame	Ministry of Energy and Industry	Albania	Bledi.Lame@energjia.gov.al
Edon	Simaku	Electricity Power Distribution Operator	Albania	Edon.simaku@oshee.al
Elena	Bebi	Polytechnic University	Albania	elenabebi@yahoo.com
Eniana	Bakalli	Electricity Power Distribution Operator	Albania	e.bakalli@akbn.gov.al ;
Enkeleda	Shkurta	National Environment Agency	Albania	ledi.mera@yahoo.com
Evis	Cano	National Agency of National Resources	Albania	e.cano@akbn.gov.al
Flamur	Bidaj	Polytechnic University	Albania	fbidaj@yahoo.com
Gentian	Profiri	Electricity Power Distribution Operator	Albania	gentian.profiri@oshee.al ;
Gjergji	Simaku	Ministry of Energy and Industry	Albania	Gjergji.Simaku@energjia.gov.al
Rodon	Miraj	Ministry of Energy and Industry	Albania	Rodon_miraj@hotmail.com
Uka	Altin	Electricity Power Distribution Operator	Albania	Uka.altin@oshee.al
Valbona	Lame-Muda	Polytechnic University	Albania	vmuda@hotmail.com
Vaniel	Naci	Electricity Power Distribution Operator	Albania	vani_naci@yahoo.com
Aleksandra	Novikova Rodi	Institute for Climate protection, Energy and Mobility	Germany	Aleksandra.novikova@ikem.de
Eleni-Danai	Mavraki	National And Kapodistrian University of Athens	Greece	edmavraki@kepa.uoa.gr
Imre	Csikos	ECRAN	Netherlands	imre.csikos@ecranetwork.org
Agnes	Kelemen	ECRAN	Hungary	Agnes.kelemen@klimapolitika.com



First Name	Family Name	Institution Name	Country	Email
Jozsef	Feiler	ECRAN	Hungary	jozsef.feiler@ecranetwork.org
Milica	Tosic	ECRAN	Serbia	milica.tosic@humandynamics.org



This Project is funded by the European Union



A project implemented by Human Dynamics Consortium

ANNEX III – Exercises given to participants to be completed before module 4 which were reviewed during the workshop in Tirana

Exercise for participants

The following exercise is a part of module 3 of the ECRAN modelling training on LEAP. The exercise consists of two (2) parts. Participants are requested to complete all tasks and report on their progress to the ECRAN team by the deadlines indicated. If you are having difficulties in carrying out these tasks, please contact **Jozsef Feiler** immediately at jozsef.feiler@ecranetwork.org, who will appoint members of the helpdesk to assist you. For this purpose please appoint a single contact point in your country who will communicate any difficulties to the ECRAN team.

Based on the Zagreb workshop, the following tasks should be developed in accordance with the LEAP needs, having in mind the presentations of creating scenarios and the last day exercise steps on building your national High Ambition Mitigation (HAM) scenario.

Task 1.

The completion of **Module 2 homework** is necessary in order to proceed with the following tasks. If you haven't done the previous homework, **FIRST** finish it and *then* work with the below.

Step 1: Review one or two sectors of your choice (a single demand sector, or a single demand sector plus the electricity generation sector) in the LEAP starter dataset for your country. Make suggestions how to improve this part of the tree based on the data identified in the Task 1 of Module 2.

Step 2: Populate the variables of the chosen sector(s) with the historical data identified in the Task 1 of Module 2, from the base year (2005 or earlier where applicable) to 2011 or 2012 depending on the country time-series data. Where the data is not available, try to find data in literature (national reports, etc.). At this point, use only the "Current Accounts" of LEAP2. Remember to keep the sources of your data for references. Use the "Notes" tab in the Analysis View so as to indicate your data sources for the data of all variables.

Step 3: Identify reliable data on current costs of fuels and technologies into LEAP.

Step 4: Insert the above data from Steps 2 and 3 in your LEAP dataset that you have created in Module 2 homework.

Step 5: Make the necessary assumptions for your Reference Scenario (ex. add endogenous capacity if necessary). This involves making assumptions related to the future trends of drivers of emissions. such as population, GDP, etc. It also involves making assumptions related to the future development of cost of fuels and technologies, which can be based on existing information sources, e.g. from the IEA or IRENA. Input data into LEAP should be based primarily on reliable national data sources. Where such

² Electricity Generation: find data on Power Plant Capacities, Historical Production, Efficiencies and Load Duration Curve.



data is not available, please use other credible data sources (e.g. IEA, IRENA, JRC, US EIA, etc.). Please resort to expert judgement only as a last resort, after you have exhausted other possibilities.

Deadline: November 6th 2015

Expected submission: Updated LEAP dataset with Data sources.

Task 2.

You are expected to create a High Ambition Mitigation Scenario³ of your country. Please recall, that the EU emission reduction target for 2030 is 40% and the target for 2050 is 80-95%, with emissions in 2050 to be reduced to around 2 tCO₂e/capita.

Step 1: Write the description of your scenario (what sectors and emissions are included, what are the characteristics, assumptions, measures, etc.). These should not be based on official sources but should reflect a very ambitious mitigation scenario which is physically feasible.

Step 2: Based on available data, create in LEAP the HAM scenario and insert the relevant functions, with time horizon from approximately 2010 (or another convenient base year for which historical data is available) to 2030 and 2050 (Basic Parameters --> Years --> End Year: 2050).

Deadline FOR FIRST DRAFT: November 30th 2015.

Expected submissions:

1. Brief report on your national HAM scenario - If you are aware of problems with data availability, don't wait until the deadline, the sooner you mention it, the better are the chances to find a solution.
2. The HAM mitigation scenario in LEAP file - **draft** version
3. Short description on what is needed to be finalized - future steps

Deadline FOR FINAL VERSION: January 15th 2016.

Expected submissions:

1. The HAM mitigation scenario in LEAP file - **final** version
2. Brief report with commenting on the results (Final Energy Consumption, Electricity Generation, Global Warming Potential graphs⁴, information on cost of emission reduction, etc.).
3. Please also discuss briefly the other costs and benefits of your HAM scenario (e.g. air pollution, development, employment). This should be done qualitatively (i.e. no numbers needed on these impacts)

³ As a reminder, the following types of scenarios were mentioned as examples during the workshop: Maximum penetration of wind, maximum penetration of rooftop solar (either PV or solar hot water or both!), an extreme electric vehicle or biofuels transport scenario, maximum penetration of public transport, a very aggressive scenario for passive building construction or for maximal retrofitting of existing buildings. However, you are free to choose your own scenario.

⁴ Tip: if you wish, you can use your national colours at the graphs to make them stand out.



4. Under which states of the world is the proposed mitigation scenario a possibility, and under what circumstances is it unrealistic? Is there a carbon price, level of economic development, amount of foreign funding, etc. which would make the scenario feasible/unfeasible?

The submission e-mail address of the outputs of Module 3 homework is jozsef.feiler@ecranetwork.org, with a copy to imre.csikos@ecranetwork.org

You may also wish to join the LEAP Facebook group or the COMMAND website and ask there your questions.

The Facebook group is here: <https://www.facebook.com/groups/LEAPSoftware>

The COMMEND web site: <http://www.energycommunity.org/>

Resources:

National Statistical Services

Energy Community Secretariat (<http://www.energycommunity.org>)

IEA Energy Statistics Manual (<http://www.iea.org/publications/freepublications/publication/energy-statistics-manual.html>)

IEA Energy Technology Perspectives (<http://www.iea.org/etp/etp2015/>)

IEA Projected Costs of Generating Electricity (<http://www.oecd-nea.org/ndd/egc/2015/>)

IEA World Energy Outlook (<http://www.worldenergyoutlook.org/> - older publications are available for free)

GHG Projection Guidelines – European Commission (

http://ec.europa.eu/clima/policies/g-gas/monitoring/docs/ghg_projection_guidelines_en.pdf

http://ec.europa.eu/clima/policies/g-gas/monitoring/docs/ghg_projection_guidelines_a_en.pdf

http://ec.europa.eu/clima/policies/g-gas/monitoring/docs/ghg_projection_guidelines_b_en.pdf)

JRC Technology Roadmaps (<https://setis.ec.europa.eu/archive/technology-roadmaps>)

JRC Photovoltaic Geographical Information System (<http://re.jrc.ec.europa.eu/pvgis/>)

US EIA (<http://www.eia.gov/analysis/>)



ANNEX IV – Evaluation

Statistical information

1.1	Workshop Session	ECRAN Workshop on climate change modelling Module 3 11-12 April 2016, Tirana, Albania
1.2	Facilitators name	As per agenda
1.3	Name and Surname of Participants (evaluators) optional	As per participants' list

Your Expectations

Please indicate to what extent specific expectations were met, or not met:

My Expectations	My expectations were met		
	Fully	Partially	Not at all
4. The workshop helped us for building technical capacities to carry out modelling of emission scenarios.	IIII (50%)	IIII (50%)	
5. The workshop helped us to gain a better understanding of modelling work which will enable us to ensure that (future) modelling is relevant to policymakers and that policymakers understand the limits of the work and are able to better interpret the results	IIII II (70%)	III (30%)	
6. The workshop gave us a proper catch up on LEAP as well as providing the initial steps in filling the LEAP structure with country relevant data, building up the basic model.	IIII II (70%)	III (30%)	



Workshop and Presentation

Please rate the following statements in respect of this training module:

Aspect of Workshop	Excellent	Good	Average	Acceptable	Poor	Unacceptable
10. The workshop achieved the objectives set	IIII (40%)	IIII (40%)	I (10%)	I (10%)		
11. The quality of the workshop was of a high standard	IIIII (50%)	III (33%)	I (11%)			
12. The content of the workshop was well suited to my level of understanding and experience	IIIII (50%)	III (30%)	II (20%)			
13. The practical work was relevant and informative	IIIII I (75%)	I (12.5%)	I (12.5%)			
14. The workshop was interactive	IIIII III (80%)	II (20%)				
15. Facilitators were well prepared and knowledgeable on the subject matter	IIIII III (80%)	II (20%)				
16. The duration of this workshop was neither too long nor too short	IIIII (50%)	II (20%)	II (20%)		I (10%)	
17. The logistical arrangements (venue, refreshments, equipment) were satisfactory	IIIII (50%)	III (37.5)	I (12.5%)			
18. Attending this workshop was time well spent	IIIII IIII (90%)	I (10%)				

Comments and suggestions

I have the following comment and/or suggestions in addition to questions already answered:

Workshop Sessions:

- Need to be followed by the same groups;
- Time well spent.

Facilitators:

- Excellent;
- No comments.

Workshop level and content:

- Very good;
 - No comments.
-

