Support for Low Emission Development in South East Europe (SLED)

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ECRAN-TAIEX multi-beneficiary Workshop on contributions to the Global Climate Agreement

18th March 2015, Tirana, Albania

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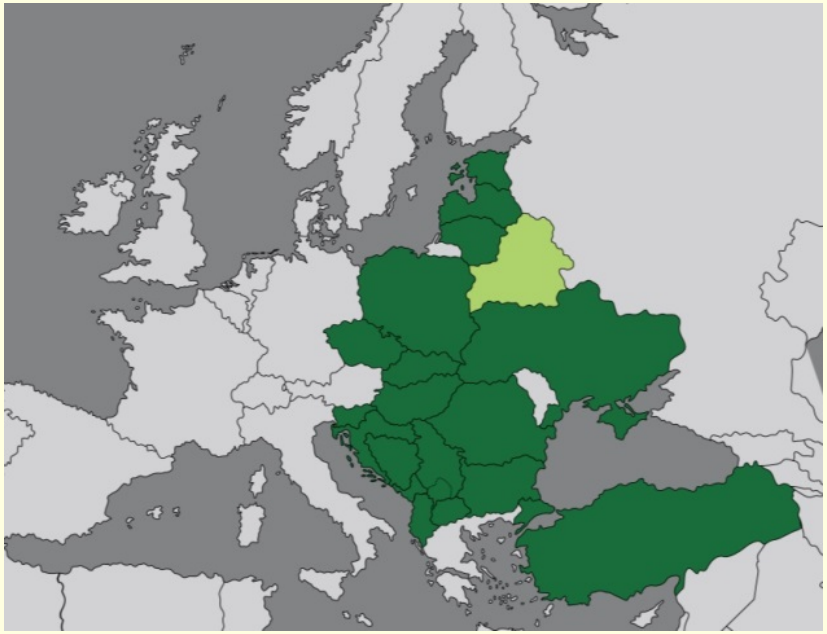
Regional Environmental Center (REC)

- Mission to assist stakeholders in addressing environmental issues and promoting sustainable development
- International organisation - charter signed by 31 countries and the EC
- Offices in 17 countries
- 100% project-financed, >200 running projects in more than 25 countries
- annual turnover 10-12 MEUR, total funding close to 190 MEUR in 1990-2012
- 30% of funding from EC



- Operates in EU MS (in CEE but also other MS), EU enlargement countries, Eastern partnership countries , beyond the REC regions

SLED project

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SLED project

- Supported by the Austrian Development Agency
- Implemented by the REC with subcontractors REKK and IKEM, separate component for Kosovo implemented by UNDP
- Duration June 2013 to December 2015
- Focus on the South East Europe region – Albania, F.Y.R of Macedonia, Montenegro and Serbia (separate component for Kosovo)
- Modelling low emission scenarios for the electricity and reidential buildings sectors

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Project rationale

To build evidence base to enable countries to fulfil future UNFCCC and EU obligations and to plan and implement national policies:

- Cancún: Low Emission Development Strategies to be drafted by developed countries, developing countries encouraged to do the same
- Warsaw - major and emerging economies to submit Intended Nationally Determined Contributions for the 2015 Agreement
- EU 2030 and 2050 targets
- Energy Community commitments related to implementation of EU Acquis, e.g. EPBD, Renewable Energy Directive, Energy Efficiency Directive

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Project structure

Component 1

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Workstream 1

Electricity sector modeling for decarbonisation

Workstream 2

Development of retrofit scenarios for the residental building sector for decarbonisation

Workstream 3

Regional synergy development in low emission development

Component 2

Capacity building on climate policy development

Policy development regarding climate change and sectoral integration of climate priorities

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Project outputs

1. Building typology
2. Modelling energy efficiency in residential buildings until 2030
3. Country level low emission development scenarios for electricity sector development until 2030
4. Regional electricity sector development scenarios until 2030

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Ownership of project results

- Throughout project active involvement of local experts in work
- Local stakeholders (national ministries) consulted to ensure usefulness to policy makers
- Works with national data
- Synergies with other projects (especially ECRAN)
- Buildings sector model to be made available to countries

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Electricity sector modeling

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Objectives

- Identify cost efficient mitigation options in the electricity sector which are in line with EU long term decarbonisation objectives
- Added value that none of the countries have modelling which views their countries as part of a wider European electricity market
- Considers not only country based but regional scenario

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Basic attributes of the EEMM model

EEMM (European Electricity Market Model) developed by REKK

- Bottom-up model (partial equilibrium, explicit technological representation)
- Exogenous demand based on other sources, satisfied by modelled electricity mix
- Competitive market for power generation
- Prices equalize supply and demand
- Efficient cross-border capacity auctions
- Capacity limits in production and cross-border trade
- Model data updated annually

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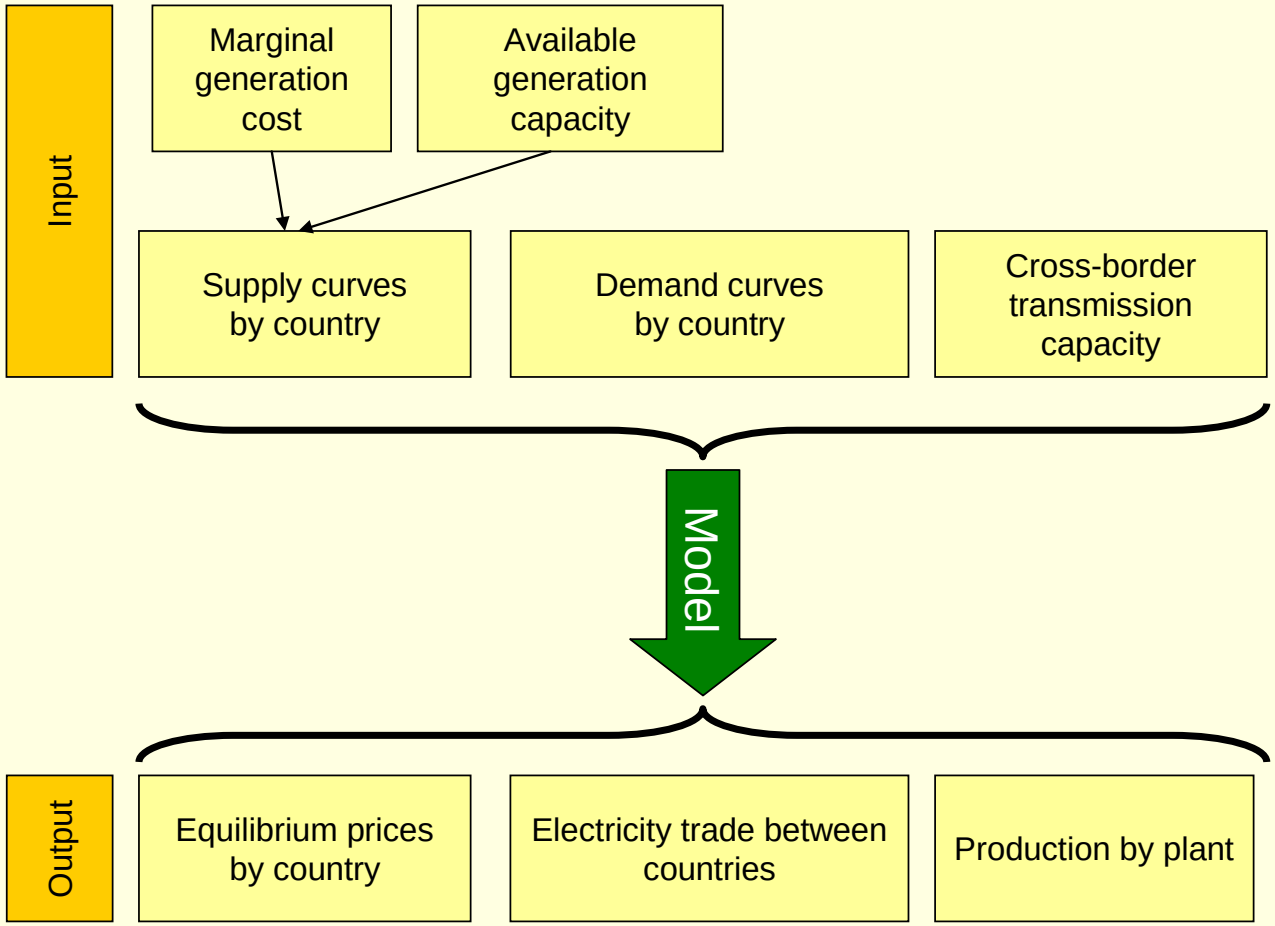
Structure of the EEMM model

Main inputs and outputs of the EEMM



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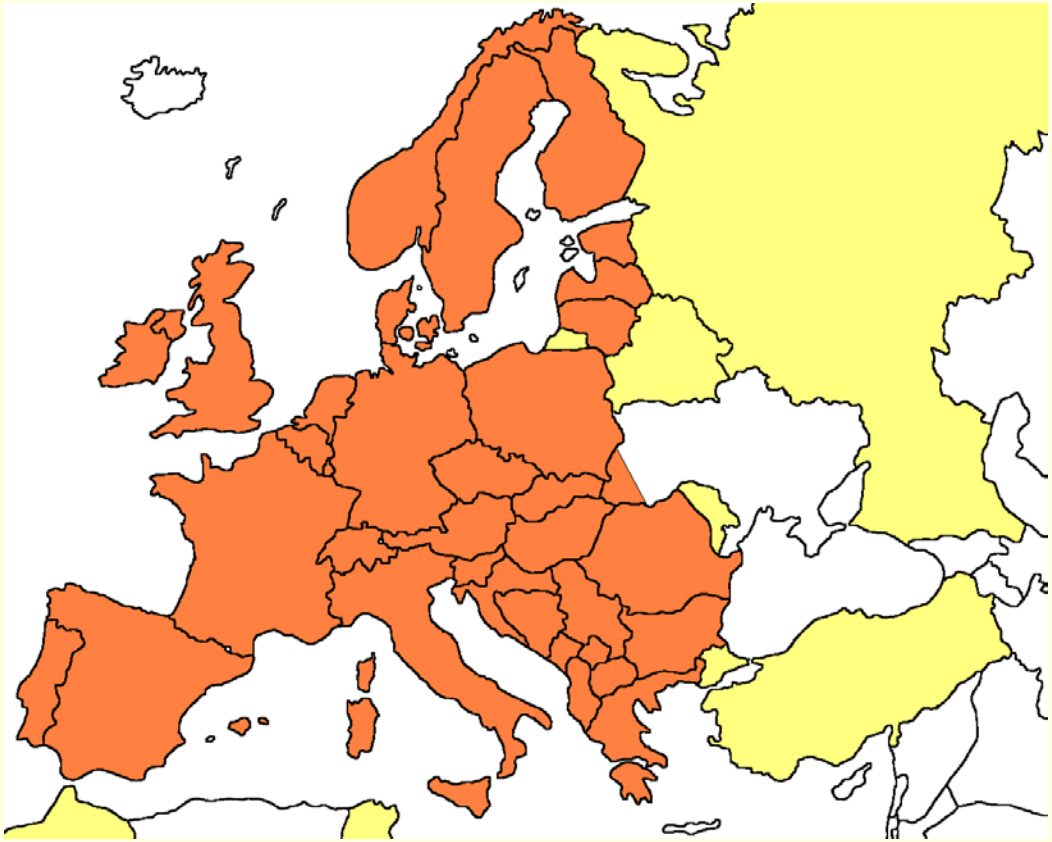
Scope of EEMM Model



- 36 European countries covered (Prices of non-EU large countries exogenousl)
- 5000 power plants
- Modelling of power flow, 84 interconnectors
- Time horizon until 2020, outlook until 2030

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Scenarios

Country level analysis:

- Reference scenario (BaU) reflecting the a possible future development of the electricity system
- Existing policy scenario
- Ambitious scenario

All scenarios to be agreed with relevant ministries and EnC Secretariat

Country level analysis to be complemented with a regional analysis in which coordinated actions across region

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Buildings sector typology and modelling

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Method and boundaries

- Building stock model: requires development of reference building typology which adequately represent national building stock, heat load calculations
- Residential buildings sector only
- CO_2 emission reduction analysis limited to energy efficiency, limited consideration of building integrated renewable energy
- The priority sources of energy consumption which will be included in the model are energy use from space heating, cooling and ventilation and water heating (no lighting, appliances)

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Modelling steps and tools

Team of local and international architects	Team of economists
Step 1 Data collection	**Step 5** Construction of the buildings stock model until 2030
Step 2 Development of the buildings typology	**Step 6** Heat load calculation for 2010
Step 3 Development of a database of retrofit technologies	**Step 7** Identification of policies, formulation and evaluation of scenarios to 2030
Step 4 Economic evaluation of retrofit technology packages by buildings type	**Step 8** Assessment of socio-economic impacts of the scenarios (CGE model)

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Questions to be answered by model

- How high is the baseline energy consumption and CO2 emissions of the residential sector between 2010-2030?
- What are the key energy efficiency technologies
- How large is the potential for energy efficiency and CO2 emission reduction and what are the associated costs?
- Costs and economic impacts of implementing energy efficiency measures

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Example of building type data sheet

	DESCRIPTION:	Detached house
	AGE:	Before 1960
	CODE:	Dtch_20-60

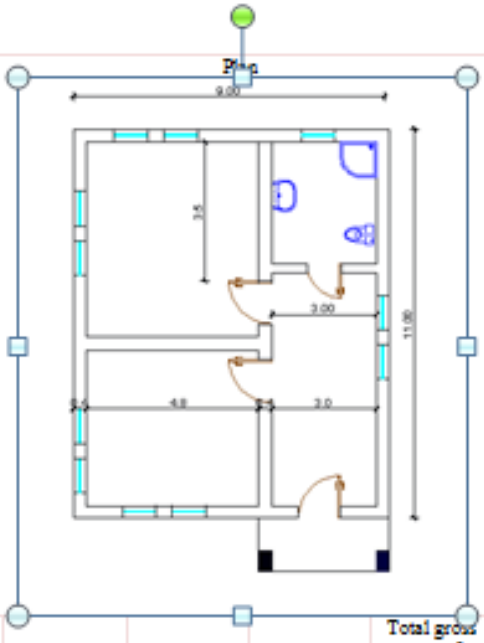
A1

1960

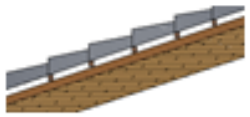
PHOTO

Code: Dtch_20-60

Plan



Ground attitude [m]	Length [m]	Width [m]	Floor Area [m²]	Volume net [m³]	Volume brut [m³]	No. Floors	Total gross area of building envelop [m²]	S/V
2.7	11.0	9.0	83	224	267	1	306	1.1

U_{wall} [W/m²K]	U_{roof} [W/m²K]	$U_{basement}$ [W/m²K]	$U_{windows}$ [W/m²K]	U_{doors} W/m²K]
2.717	2.8	2.0	4.9	3.0
				
Stones Wall	Wood roof with stone tiles	Concrete floor on the earth	Wood windows with single glass	Wood door

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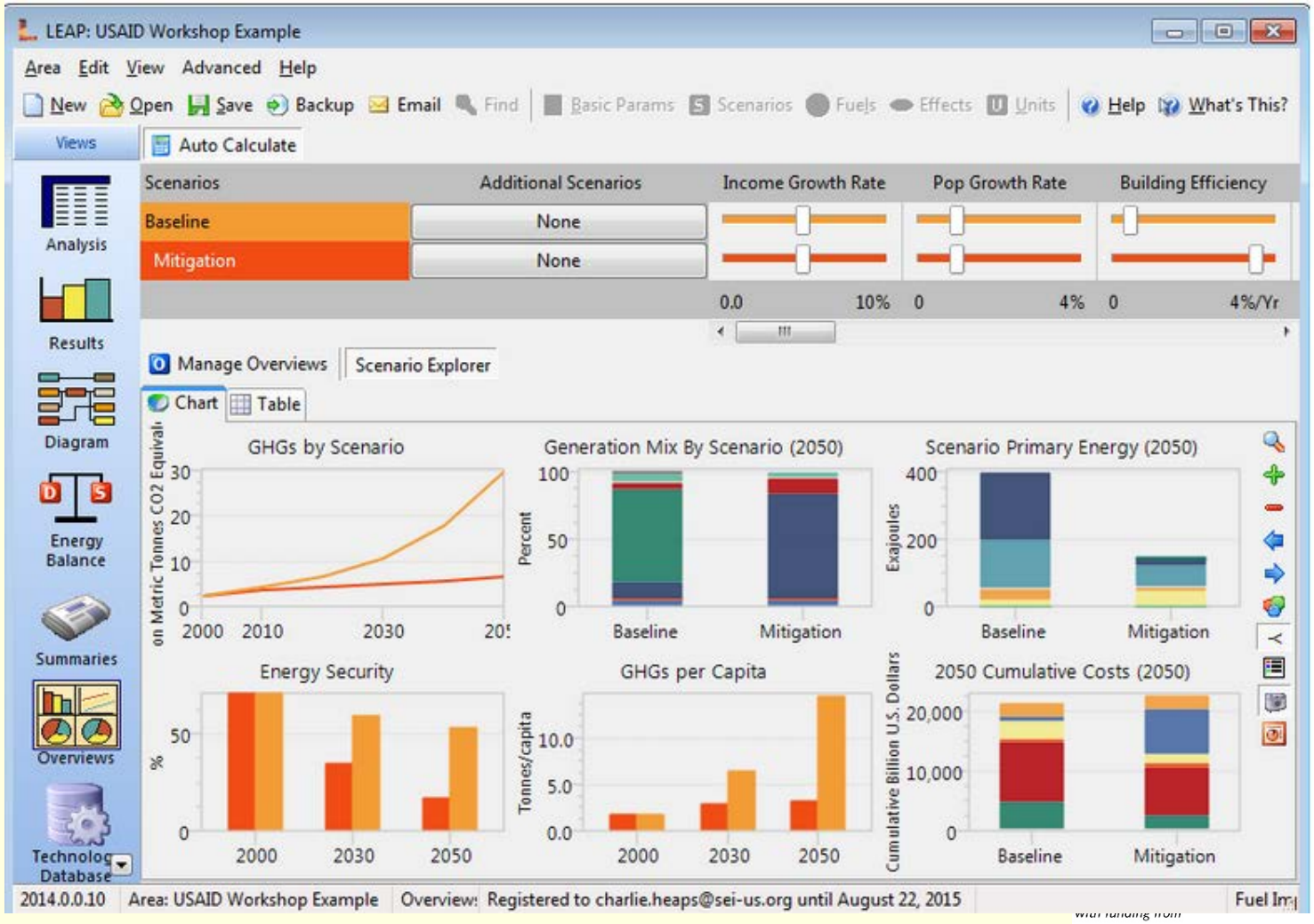
Software

LEAP: User friendly, flexible, free for target countries, synergies with ECRAN project



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Regional synergies

- The project aims to facilitate information exchange among donors and other projects involved in low emission development in South-East Europe
- Meetings every 6 months for information exchange
  - January 2014 – EC, UNDP, ECRAN project, LOCSEE project, SLED project
  - June 2014 – EC, UNDP, ECRAN project, LOCSEE project, SLED project, Austrian Min. of Env.

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Thank you for your attention!

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