

ECRAN modelling training – Module 2

Exercise for participants

The following exercise is a part of module 2 of the ECRAN modelling training on LEAP. The exercise consists of three (3) 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** 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.

The tasks have to be understood in connection with the LEAP exercises introduced at the regional trainings in Skopje and Istanbul. They are based on the datasets provided for your countries by Charlie Heaps.¹

Task 1.

Step 1: Open the LEAP starter dataset for your country distributed by Charlie. Using “Current Accounts” (Scenarios button), check the input data needed to populate the variables. At present, these variables are filled with data gathered from the IEA balances and other sources. They are compiled until the base year 2011 and include:

- a) key social and economic data such as population, urbanisation rates, human development indicators, GDP, sectors’ value added, income, transportation intensity and others listed in “Key Assumptions”,
- b) historical energy balances for the energy demand sectors in "Demand" and the transformation sector listed in “Transformation”,
- c) GHG emission factors entered for the Demand and Transformation sectors².

Then, find locally available input data for these variables in your countries (national statistics, etc.) and compare them to the data of LEAP dataset for at least 5 years (2007-2011). In case you can find data for a longer period, try to compare as many time-series data as possible.

Tip: For comparing the energy balances from the National Statistics to those in LEAP dataset, you could press the Energy Balance View in the View bar (on the left of the screen) and choose the years 2007 and 2011, and then check the numbers both for demand and transformation.

¹ Charlie will provide a starter LEAP dataset for Kosovo.

² In order to find the GHG emission factors for each technology in LEAP dataset, you need to click on each technology branch and choose the "Environmental Loading" tab. Another option is to look in the TED database (in the View bar on the left). Then, compare those with the national GHG emission factors.

Step 2: See how GHG emissions calculated by LEAP starter dataset (using *Results View* and choosing *Result* option: *Global Warming Potential*) match the latest GHG inventory available for your country³. If there are significant differences among these, then try to find out causes for the differences, using the comparison results of step 1. As a result of your work:

Prepare a brief report on

- the **coincidences and differences between GHG emissions** calculated in LEAP starter dataset and emissions as reported in the national inventories
- the **causes of those differences**, providing your judgement which data are the more realistic.
- and **possible data gaps and/or data quality problems**.

Deadline for submitting the brief report (maximum 2 pages): **Friday 17th July, 2015.**

Tip: You could go to "Results View", choose Result category: One Hundred Year Global Warming Potential, and click each time on different sectors of the tree so that you compare the GHG emissions for each sector. The causes of any differences could be, most probably, related to different GHG emission factors or differences on energy consumption/production of the fuels. So, if you notice differences in a certain sector, you check the energy consumption or production in this sector and the respective emission factors of the fuels.

Task 2.

Step 1: Review the demand sectors in the LEAP starter dataset for your country. Make suggestions how to improve the tree based on the data identified in the Task 1; you may also wish to think about the further sector disaggregation into branches. Depending on the data availability, these could be, for instance, disaggregation of the residential sector by types of buildings and/or by end-uses; disaggregation of the services sector by sub-sectors, by end-uses, and/or by types of buildings; further disaggregation of transport or industry, etc.

Step 2: **Prepare a new LEAP dataset** based on your research and **save it under a different name**. This dataset should include **detailed branches** for the following sectors:

- residential
- services
- transport
- industry
- other energy use

³ You can check for inventory data from local experts and at http://unfccc.int/national_reports/non-annex_i_natcom/items/2979.php. Usually, National Communications contain a chapter on inventories, but the data might not be enough detailed – this varies by country.

For the above demand sectors, populate their variables with the historical data identified in the previous Task 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 LEAP.

Use the "Notes" tab in the *Analysis View* so as to indicate your data sources for the data of all variables.

Task 3.

Step 1: Build a reference scenario for the above demand sectors of your country until 2030. Include assumptions about the development of social and economic indicators, technology stocks (shares or saturations of technologies), and energy intensities of end-uses/technologies, using official references (for instance, population growth projections from United Nations).

Tip: You need to create a new scenario called "Reference" using the button "Manage scenarios". Then, you need to switch to "Reference scenario" and insert appropriate functions, using "Function Wizard" or "Time-series Wizard" to represent your assumptions. You could make population growth projections using the censuses from United Nations reports or the National Statistics and GDP growth projections using IMF projections.

Step 2: Prepare a brief report using the results of your reference scenario and including comments on them.

Deadline for submitting the LEAP dataset of Task 2 and the brief report (maximum 2 pages) of Task 3 by **Friday 4th September, 2015**. The submission e-mail address of the outputs of Task 1, Task 2 and Task 3 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

<http://www.energycommunity.org/>

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

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