Introduction to CLEWs

Hands-on lecture 1: Setting up the infrastructure

V2.0

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Tags: CLEWs; Climate; Land; Energy; Water; Systems Modelling; Integrated; Policy Coherence; Installation; Hands-on; Climate Compatible Growth; Open Source; Teaching Kit.

Useful links:

1) Energy Modelling Community (EMC) Discourse Forum – please use this for any CLEWs-related discussions, especially troubleshooting queries!
2) EMC LinkedIn.
3) CCG YouTube.

Activity 1 – Install the interface

1.1 Installing the interface.

NB. To conduct this activity and all the ones that follow in the course, you need a computer that has Windows 10 (or 11) Operating System. In case you have problems after checking the installation instructions, contact the course administrators immediately through the above-indicated discussion forum. In case you have already installed the interface, jump to hands-on exercise 2.

Through this activity, you will install the user interface (UI) you will be using for creating models throughout the course. The interface is called MUIO (previously known as 'OSeMOSYS UI'), and it is used for creating OSeMOSYS models.

Together with the interface, a template model will be installed, which you will use in the next hands-on sessions and slowly develop to create an energy system model.

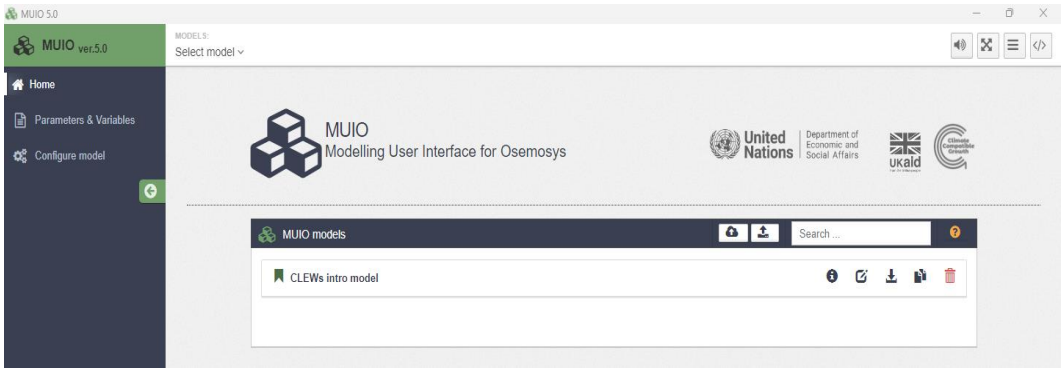
To install the UI and the template model file:

1. Follow the link to a survey here, and then you will be directed to GitHub to download the latest *.exe* version of MUIO (*version 5.3 as of November 2025*).
2. Move the .exe file from your download folder to a folder where you have administrator privileges. This may be, for instance, inside the folder **users/*name_of_the_user*** or any other folder you prefer. Usually, folders like Desktop, Downloads, or C: may not work.
3. Click on MUIO.exe and let the UI be installed. Do not close the window that opens; it will close automatically when the installation is complete.

4. Once the installation has been completed, the interface should open automatically. If the window is blank, close it and open the interface manually. An icon for the interface should have appeared on your desktop. Double-click on it.

5. If the interface still does not open after these steps, open the installation folder (i.e., C:\Users\your_user\AppData\Local\osemosys) and find the file 'osemosys.exe'. Right-click on it and '**Run as administrator**'.

6. You will see the UI in a new window, as in the figure below.



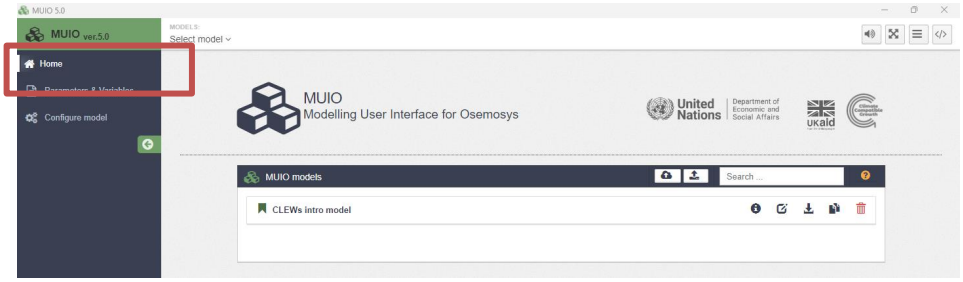
Do not close the UI window once it has opened. Pin the UI icon to the taskbar and always access it from there.

EXTRA TASK:

- Go to this link and download the Excel document named **'CLEWs OU November 2025 Data File'**; you will need this for later! You will also see a document with the hands-on solutions, you can download this too, but you do not need it just yet…

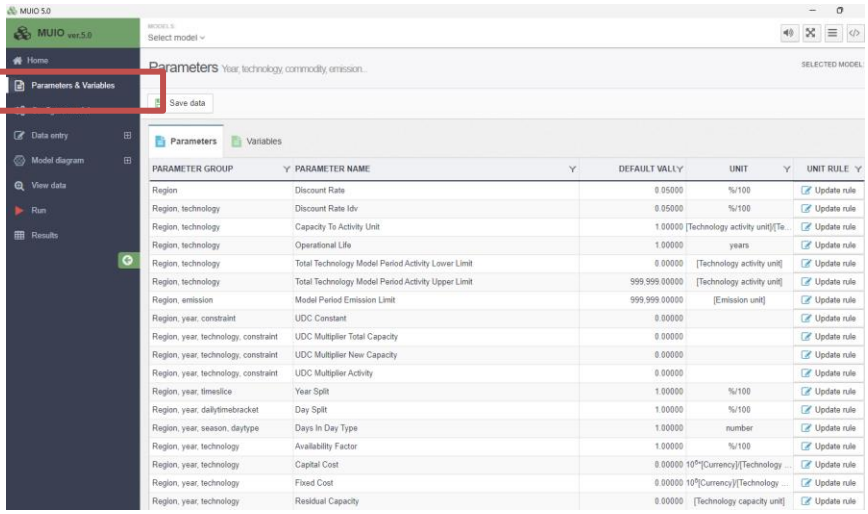
1.2 Exploring the User Interface (UI)

Home:



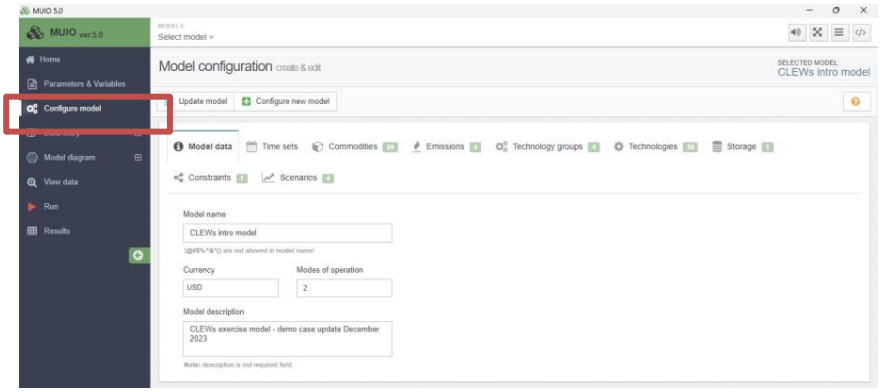
- Displays the list of models currently created or uploaded to the UI. To select a model, click over its name in the list or use the option “Select Model” on the top bar.
- When a model is selected or a new model is created (in “Configure model”), the left menu shows additional option.

Parameter and Variable:



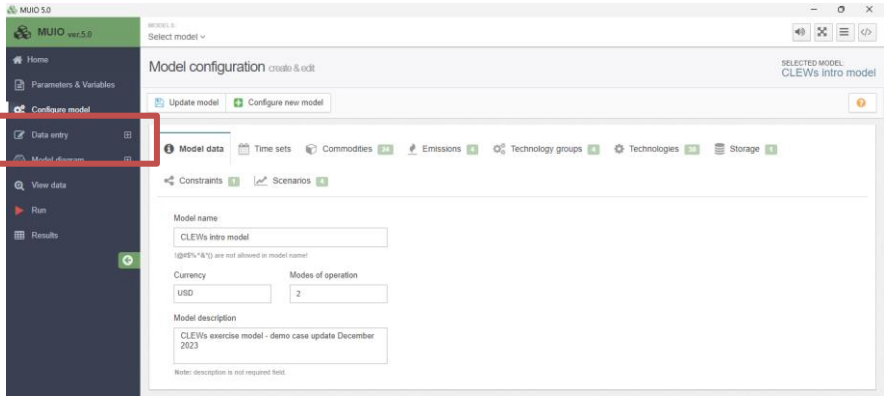
- Displays the list of model parameters and variables, with the indication of linked Sets, default values, and a guide for expressing units. It is also possible to update the unit rule.

Configure Model:

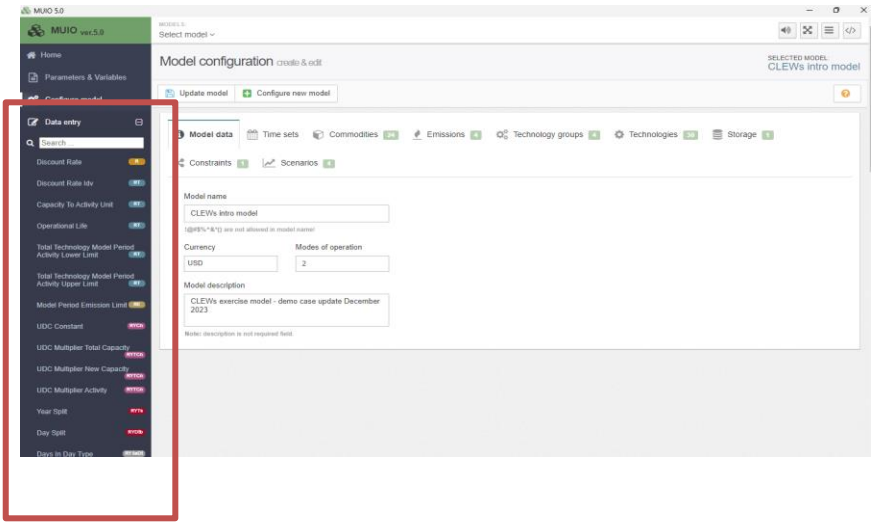


- Edit a selected model or create a new model. Main section for creating and/or editing Set memberships. This is the screen used to design the model structure (you will be using it every time you create a new model, set up its time domain and create time slices, add a new technology or commodity, add a link between a technology and commodity).

Data Entry:

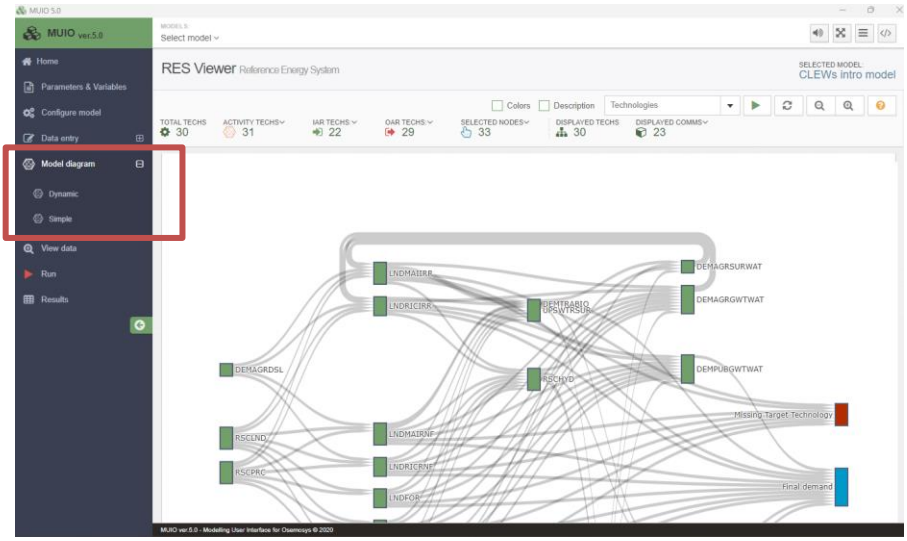


- Enter parameter data.



- When selected, a list of parameters is shown. The search option allows you to quickly filter to the desired parameter(s). You will use this whenever you enter new (or updated) numerical values into the model.

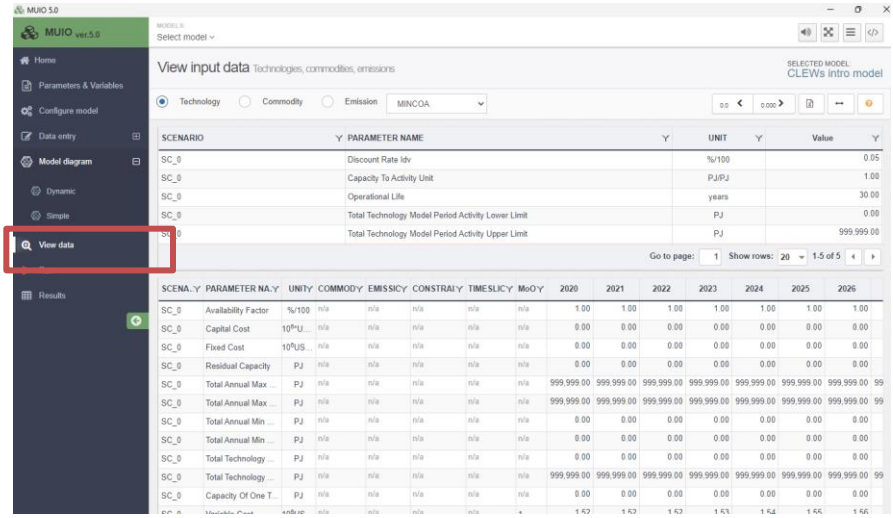
Model Diagram:



Displays the reference system represented in the model. Two views are possible:

- **Dynamic**: allows for user input on what information to be displayed
- **Simple**: Static view with boxes and lines.

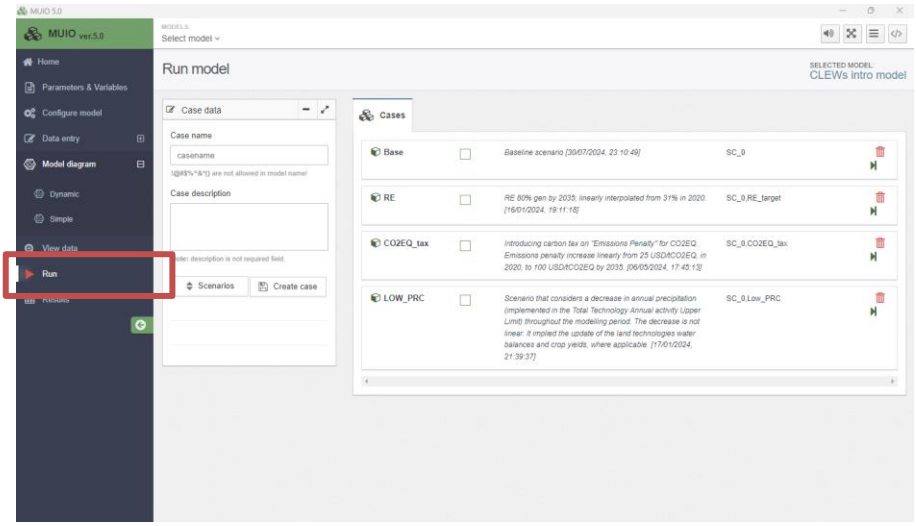
View Data:



- Enables viewing all parameter data introduced for a specific Technology, Commodity, or Emission. Note that this view can take a while to load for larger models. You may not use

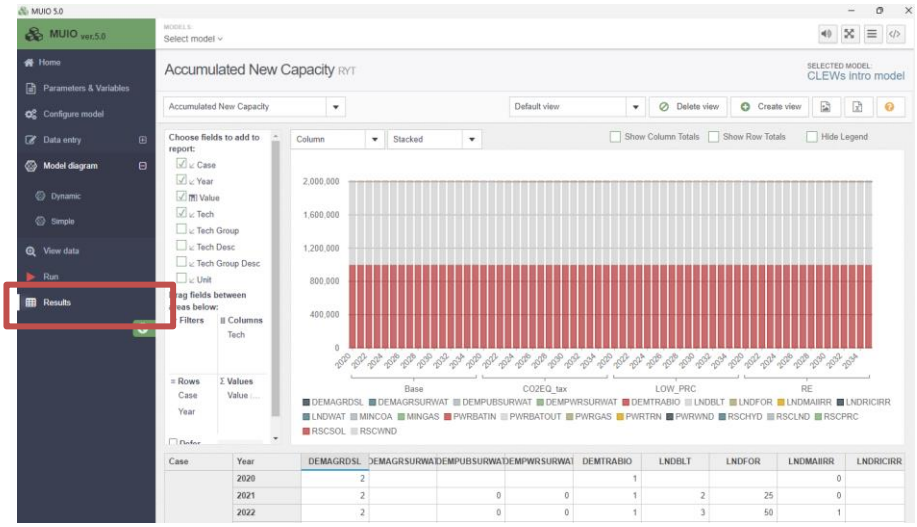
it often (in theory it will not be needed for any exercise, though you may want to use it to get overviews of all data you provided for a specific technology – it may be good for **debugging purposes**).

Run Model:



- Section of the interface for creating a "Case" and running it. A "Case" can include one or more scenarios.

Viewing Results:



- Displays model results (output variables) for case runs. The user can modify the chart/table layout, apply filters, and further adapt the results view to their needs through pivot table functionality. More information on this will be provided in future hands-on worksheets.