

At the EMP-E Conference

October 26-28, 2021

The 2021 Energy Modelling Platform for Europe (EMP-E) Conference theme, “Re-Energising Sustainable Transitions in Europe”, will be a forum bringing together Europe’s energy modelling community with European Commission representatives and partners from industry and civil society. Register [here](#).

WHY Skills Workshop at EMP-E

Nine skills workshops were developed for the EMP-E to provide further interactive expertise to participants. Divided into the three tracks: “Introduction to ESMs”, “Advanced modelling techniques”, and “Quality aspects”, the skill workshops range from technical skills like programming energy models, business model development, to scenario design, social engagement and behavioural outcomes. These skills workshops complement the EMP-E’s programme, occurring after the opening day sessions and kicking off the morning sessions on the second and third days.

Participants of the Skills Workshops will come out of the experience with a unique and practical understanding of ESM structure, techniques and social contexts, digesting the components of ESMs to lead to more optimised ESMs of the future.

Schedule and Skills Workshop Descriptions

TRACK 1: Intro to ESMs	TRACK 2: Advanced Modelling Techniques	TRACK 3: Quality Aspects
Day 1: October 26 from 16:00 – 17:30		
Energy System Models: Basic Principles and Concepts	High resolution time series processing	What Energy System Modellers should know about [open] data and software licenses
WHY (E3M/RGI)	WHY (GoiEner/UD)	OpenMod (Robbie Morrison)
Day 2: October 27 from 9:00 – 10:30		
How to set up a scenario for energy system modelling	Technical possibilities vs. Economic Feasibility: The issue of viable business models for innovative technologies	Communicate and inspire: How to convince with a pitch
WHY (TNO)	WHY (4ER)	WHY (Climate Alliance)
Day 3: October 28 from 9:00 – 10:30		
Hands-on session with the Calliope ESM Framework	How to model citizens’ behaviour	EnerMaps: Open-access Energy Data and Calculation Modules
SENTINEL (TU Delft/ETHZ)	WHY (UD)	EnerMaps (e-think)



Day 1: October 26, 2021 from 16:00-17:30

Track 1: Energy System Models: Basic Principles and Concepts – Presented by E3 Modelling and Renewables Grid Initiative

This session is open to researchers, experts and students who have an interest in modelling energy systems and climate policies. In addition to learning how energy systems operate, participants will gain expertise in different ESMs used by decisionmakers, analysing the most important modelling paradigms, and identifying linkages between climate policy and energy system developments.

Participants should possess a basic knowledge of energy system terminology.

Track 2: High resolution time series processing – Presented by Deusto University and GoiEner

This session is designed for data scientists in the energy field. The objective is to present a methodology to assess high-resolution time series from smart meters. Participants will gain a general understanding of the basic steps to process big datasets and signify different behaviours of household electricity consumption.

The programming language R is required. This session will use Google Colaboratory, only a Google account and web browser are required.

Track 3: What Energy System Modellers should know about [open] data and software licenses - Presented by Robbie Morrison (OpenMod)

This session is accessible to anyone interested in the legal aspects of open and closed modelling, including datasets and licenses, and the potential benefits of open models for facilitating transparency, inclusion and collaboration. Finally, this session discusses public interest analysis to gain insights on open models for public policy development.

No perquisite skills or software are necessary, all are welcome to join.

Day 2: October 27, 2021 from 9:00-10:30

Track 1: How to set up a scenario for energy system modelling – Presented by TNO (Netherlands Organisation for Applied Scientific Research)

In this session, we will discuss how to set up scenarios for energy system modelling. We will cover different topics, such how to build a consistent set of storylines, how to choose which parameters to vary, and how scenario-design can be optimised so as to establish a strong link between model outcomes and policy.

Basic knowledge of ESMs is required, experience in specific modelling platforms is desirable, but not essential. Each participant should bring at least one relevant



example of a scenario design problem from their work experience to be discussed in the session.

Track 2: Technical possibilities vs. Economic Feasibility: The issue of viable business models for innovative technologies – a modellers approach – Presented by 4Ward Energy Research

This session is geared toward researchers, experts and students from a technical background who are interested in how business models can be applied to technical simulation or optimisation models to gain a bigger picture. Participants will be able to gain knowledge about business model development, using the business model canvas, value chains and their application to techno-economic simulation models.

Participants should have basic knowledge of technical simulation models for energy systems and a basic knowledge of creating simulation models in Python.

Track 3: Communicate and Inspire: How to convince with a pitch – Presented by Climate Alliance

This session is aimed at young professionals who wish to improve their presentation skills and show the importance of research results to target groups ranging from potential investors, future collaborators and peers, or project leadership. Participants will learn how to effectively communicate their latest results in a concise and comprehensible way.

This session will use Google Slides, a Google account is requested for all participants. Participants should also have an example of 1 model result for the interactive working group.

Day 3: October 28, 2021 from 9:00-10:30

Track 1: Hands-on session with the Calliope ESM Framework – Presented by TU Delft and ETHZ

This session is hands-on for participants to learn the basics of high-resolution energy system modelling to explore energy planning and policy decisions. Participants will interpret inputs of the Calliope model, create a model based on energy supply and demand datasets, compare model outputs, and understand how energy system models balance demand and supply in a complex system.

Participants will set-up, run, and analyse results from models on their own devices. Calliope is written in Python programming language. Calliope software must be installed on each participant's device to participate. Follow the instructions to install Calliope here: <https://calliope.readthedocs.io/en/stable/user/installation.html>



Skills Workshop

Track 2: How to model citizens' behaviour? – Presented by Deusto University

This session is geared for researcher who are interested in learning about causal models from qualitative and quantitative aspects. Participants will learn how to build and use practical causal models to extract knowledge from experts and exploit a causal diagram to improve decision making.

Knowledge of Python programming language is required. This session will use Google Colaboratory, only a Google account and web browser are needed.

Track 3: EnerMaps - Open-access Energy Data and Calculation Modules – Presented by e-think for the EnerMaps project

This session is aimed at energy researchers, energy industry and public administrations with varied levels of modelling experience, including students. Participants will learn how to find open-access publications, FAIR data, and quality-checked datasets, on the EnerMaps Gateway, and re-use them in open-access Calculation Modules on the EnerMaps Data Management Tool, the Hotmaps Toolbox or on own modelling systems.

No previous experience is required, but we encourage those in the targeted group listed above to join. If participants have a preferred tool for importing open-access datasets that isn't listed, please prepare this ahead of time.



Register for EMP-E 2021 to sign up for the WHY Skills Workshop!