

Interactive.li: Leveraging AI, Simulations, and Gamification to Engage Stakeholders in the Energy Transition



Saied Dardour · PhD · MBA
Gréoux Research · www.greoux.re · Email: saied@greoux.re



Context

Limiting global warming well below 2°C requires a major shift in energy generation.

With the power sector accounting for two-thirds of global emissions¹, there is a pressing need to transition from fossil fuels to low-carbon alternatives².

This transition presents technical³, and social-economic challenges⁴ requiring the immediate attention of key stakeholders.

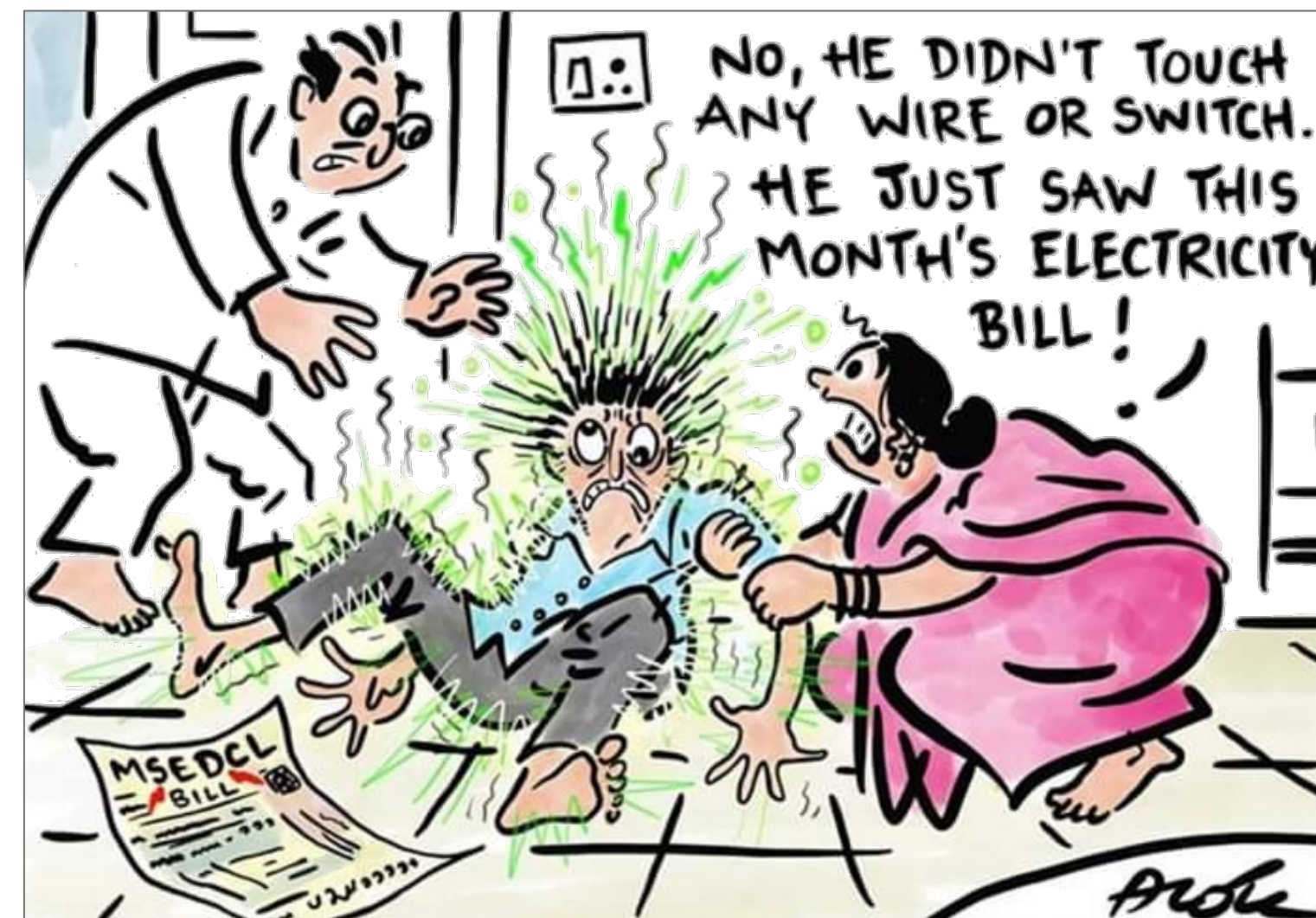


Illustration: @Snehtweets on X.com

Challenge

The energy transition requires broad public support but faces several obstacles, including limited awareness, widespread misinformation, and distrust of public institutions⁵.

These barriers are particularly pronounced among young people⁶ - the so-called 'digital natives' -, who often lack a clear understanding of power systems⁷ and rely on social media for information about energy and climate⁸.

Engagement Strategies

Key youth engagement strategies include empowerment⁹, strategic use of social media¹⁰, and interactive, gamified learning¹¹.

These approaches often overlook the potential of simulation for understanding complex systems¹² and the transformative possibilities of generative AI for overcoming cultural and language barriers and analysing public opinion in real time¹³.



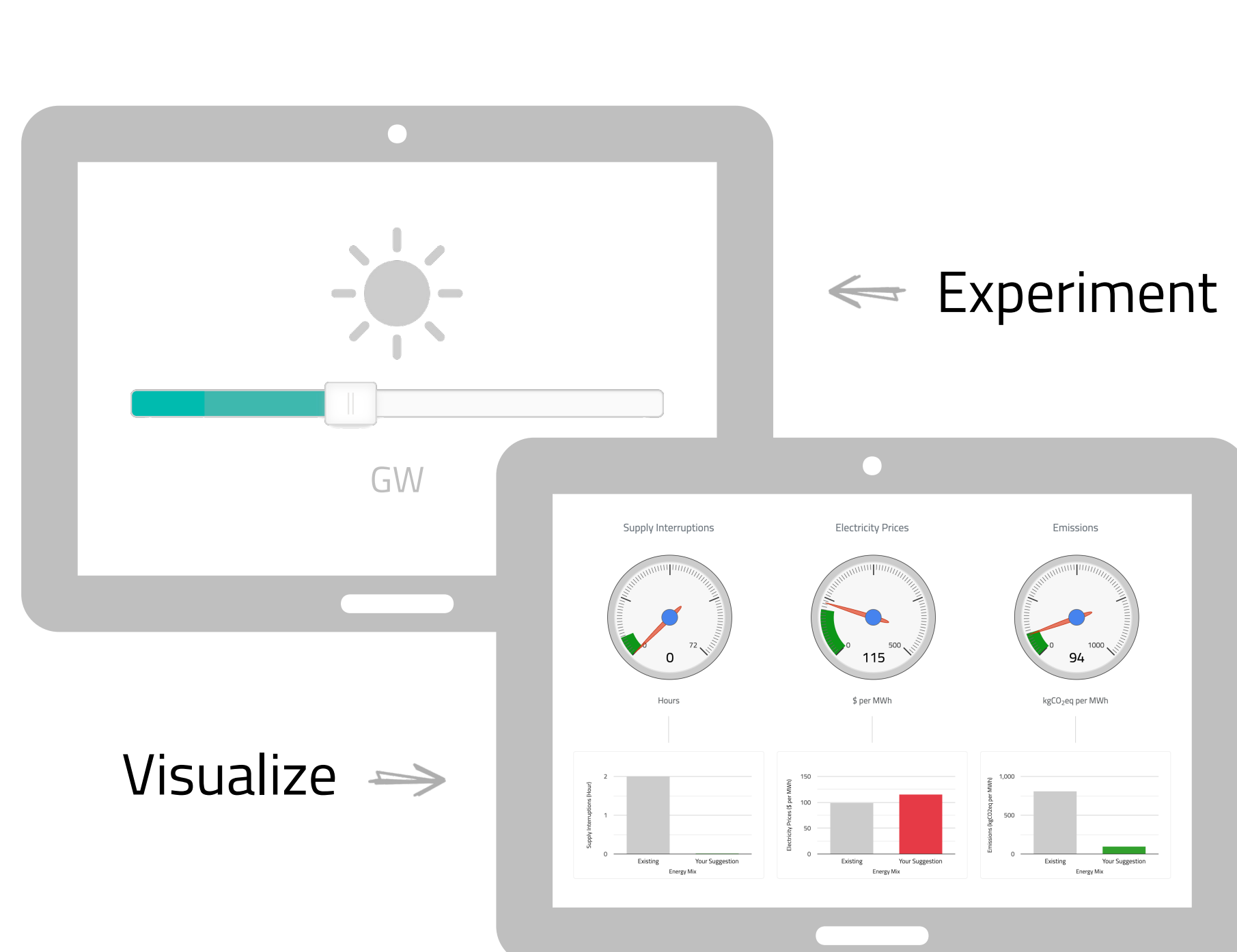
Illustration (edited): Mentimeter.com

Interactive.li: A Live Poll App

✓ Promotes a real-time, bidirectional flow of ideas and information for an effective stakeholder engagement¹⁴.

✓ Supports simulation, allowing participants to 'learn by doing' in a safe, controlled environment¹⁵.

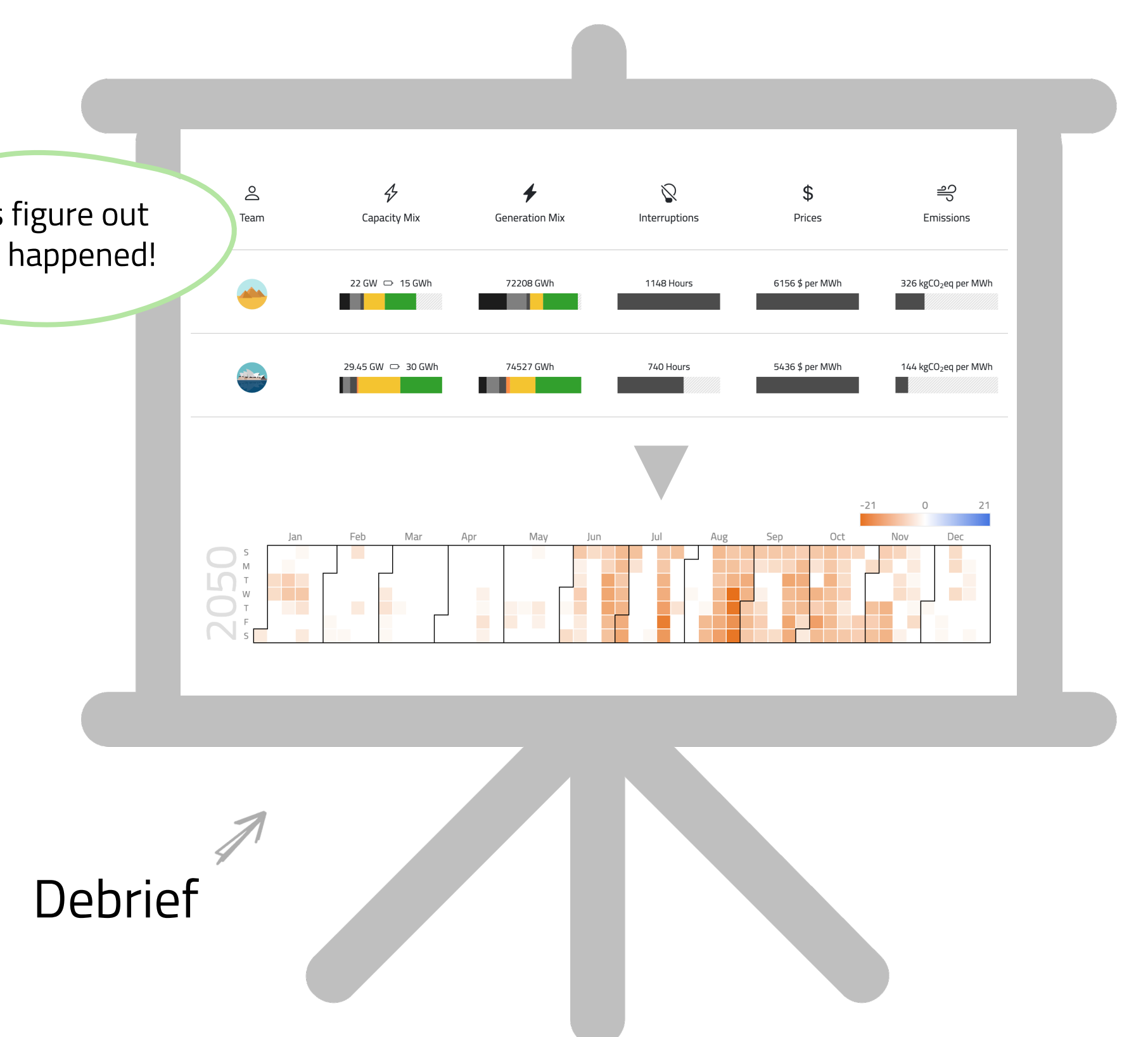
✓ Leverages generative AI to automate the summarisation and analysis of audience feedback¹⁶.



Discuss



Illustration (edited): Mentimeter.com



Debrief

Simulation

In the power sector, energy system modelling use economic principles and mathematical optimisation to simulate how energy systems behave¹⁷.

These tools typically rely on Mixed-Integer Linear Programming techniques and powerful commercial solvers¹⁸.

'Beyond Coal' (below) uses IESO, an open-source system optimiser¹⁹, as a simulator.

Gamification

Gamification transforms passive learning into an active, engaging, and enjoyable experience²⁰.

Interactive.li enables the inclusion of game elements -objectives, rules, levels, and rewards -, aligning with learning goals²¹.

Participants are encouraged to cooperate within their groups, build consensus when making decisions, and compete against opposing teams.

AI

Popular Large Language Models (LLMs) offer Python interfaces, enabling their integration into live survey apps to analyse participant responses and provide deeper insights.

Interactive.li uses GPT-4o, OpenAI's flagship LLM, to process participant feedback, assess comprehension during - and after - the session, and measure how well key concepts have been understood²².

Example: Beyond Coal

The serious game aims to raise awareness about the challenges associated with phasing out coal use²³ as part of the broader effort to combat climate change and curb emissions.

In a typical session, participants are challenged to set the energy mix of a fictional country, explore the impact of their decisions, and see how their outcomes compare with those of their competitors²⁴.

Session Structure

- 1- Briefing: Presentation of the challenge.
- 2- Brainstorming phase and group discussions.
- 3- Submission of groups' decisions.
- 4- Impact simulation and exploration.
- 5- Comparison of groups' results.
- 6- Celebrating the winners!
- 7- Debriefing: Key takeaways.



Notes & References



<https://interactive.li/r/poster>