

4th International Forum

Long-term Energy Scenarios for the Clean Energy Transition

The role of long-term energy scenarios (LTES) in achieving net-zero commitments

7-9 December 2022 | Hybrid event

Event Proceedings (Day 3)



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Event summary

The 4th LTES Forum hosted approximately 35 attendees at IRENA Innovation and Technology Center offices in Bonn, Germany, while 359 people participated in the Forum online. The participants represented a diverse array of stakeholders, such as government officials, intergovernmental organisations, development partners and non-profit organizations. The discussions conveyed during the Forum covered various topics including the alignment of long-term energy scenarios (LTES) with climate change strategies, demand-side assessment, hydrogen development strategies, and geopolitical issues, among others.

Through presentations, panel discussions, and attendees' interventions the Forum facilitated the exchange of knowledge and experiences on different aspects of the planning of LTES. An Interactive Workshop conducted on the final day of the Forum enriched the participants' understanding and perspectives on effective stakeholder engagement in the development of long-term energy scenarios (LTES).

Key takeaways

Session 1 - Aligning Long-Term Energy Scenarios (LTES) with Long-Term Low-Emission Development Strategies (LT-LEDS) to strengthen climate action

- **Energy Scenarios play a crucial role in the long-term planning for the energy transition** as they often capture the strategic dimensions of the energy sector while considering the alignment and interplay with other sectors and development strategies.

Session 2 - Demand-side assessments in Long-Term Energy Scenarios

- **A multidisciplinary approach is required to assess demand-side aspects on energy scenarios**, this approach allows the inclusion of quantitative results and narrative pathways in LTES. It is important to consider multiple techno-economic and societal factors to ensure effective long term energy planning.

Session 3 - Long-Term Energy Scenarios as an explorative tool for policymaking

- It is important to **understand the objectives and goals of decision-makers** to distill the right scenarios and concrete messages by technical experts to ensure the efficient use of scenarios in policymaking.
- To properly plan for the future, **LTES tools, techniques, and good practices** should be utilized to ensure a quick and efficient energy transition.

Session 4 - Role of 100% renewable electricity for the energy system transition in scenarios

- **Accounting for 100% renewable electricity** in LTES is a challenging but necessary process. It is important to further interrogate key aspects in LTES such as sustainability metrics, measures for cleaning the power system, impacts of supply chains, materials and resources constraints, and societal impacts.

Session 5 - Incorporating global hydrogen insights for national LTES narratives

- **Hydrogen is part of the bigger energy transition picture.** Setting the right priorities for hydrogen use will be essential for rapid scale-up and long-term contribution to decarbonization efforts. Scenarios help to assess different options for market development of hydrogen for national strategies.

Session 6 - Key geopolitical considerations in national LTES for planning a clean energy transition

- **National long-term scenarios help governments navigate uncertainties globally.** The use of these scenarios is vital in addressing the latest socio-technical challenges and making the most of the opportunities offered by the transition to a low-carbon economy.

Workshop 1 - Participatory processes for developing national long-term energy scenarios

- Refer to the section *Workshop 1: Group discussion session on participatory processes*

Workshop 2 - Country and expert cases on stakeholder consultations

- **Proper participation and engagement** of the different stakeholder groups is vital in Long Term Energy Planning.

Session summaries

DAY 3 - Friday December 9th, 2022

Workshop 1: Participatory processes for developing national long-term energy scenarios



Asami Miketa — Built on the LTES presentation from Day 1 regarding the participatory process, communication methods and mental frameworks. To ensure beneficial stakeholder participation it is vital to define the scope and model of scenarios. Participation in scenario building ensures proper communication, builds trust, and increases acceptance of model results. In the past mental models in the participatory process were separated from communication models, however, these have now been combined.

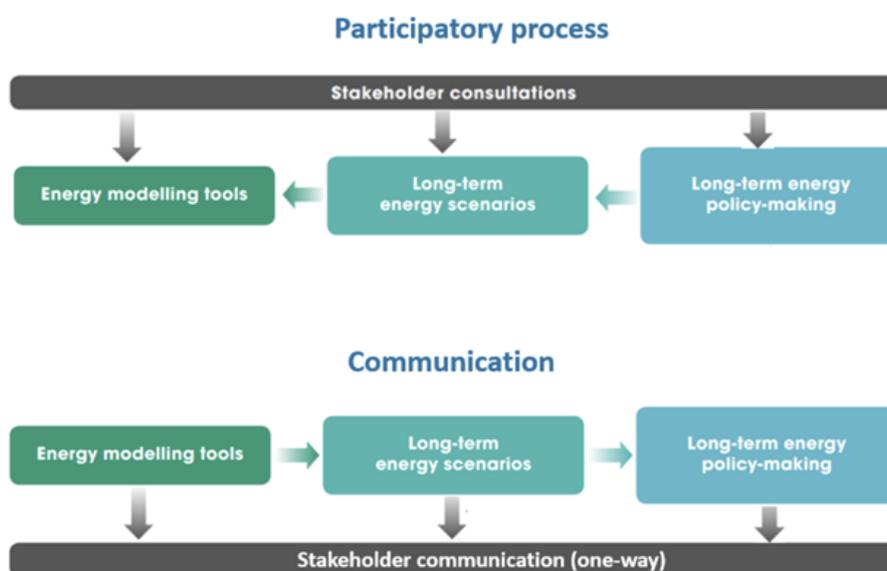


Figure 1: Illustration of IRENA LTES Adapted Mental Models



James Glynn — Made a presentation titled '*Participatory Engagement | Learning by doing Co-creation of LTES with communities from local to global, farmers to president*'. The presentation was based on 3 different scenarios first the IRELAND-European Union (IRELAND-EU), second is International Energy Agency- Energy Technology Systems Analysis Program (IEA-ETSAP) and third is CGEP Centre on Global Energy Policy at Columbia University in New York City (CGEP in NYC). Within the IRELAND-EU model data collection for energy system optimization was difficult. The solution was to build more direct relationships with policy makers which

was possible as Ireland is a small country. One of the key lessons was that it is important to build trust early with communities, show empathy and emotional intelligence as an engineer. Additionally, it is vital to map potential project impacts through community engagement initiatives.

Futures-thinking is a growing field which enhances trust and collective visioning. It also widens debate on the future of society under growing uncertainty due to climate change and other major societal issues. In Ireland, tools were developed for engaging with local community organizations and social enterprise partnerships among others. The guiding principles used included diversity, nurturing and creating spaces for those who are typically excluded from decision making. Similar lessons regarding the importance of fact-based dialogue were learned from the IEA-ETSAP case and CGEP case.

1. IRELAND+EU

- Publishing First Net Zero scenarios for Ireland
- Development of TIMES IRELAND Model (TIM)
- LTES Dialogue with Gov Climate-Action committees
- Co-Creation of relevant scenarios to communities
 - "IMAGINING2050"
 - ucc.ie/en/imagining2050/
- Carbon Budgets are now enshrined in Law using TIM

www.energypolicy.columbia.edu |  @ColumbiaUenergy

2. IEA-ETSAP

- Development of global ESOM + LTES research communities.
- Teaching Modeling tools for decision makers – creates iterative long-term relationships



3. CGEP in NYC

- Development ESOMs as tool for dialogue at CGEP.
- Honest independent broker of dialogue on energy transition, energy security, science-based policy targets using data driven dialogue.



Figure 2: Mapping the journey of the trilogy



Reshma Francy — Noted that when it comes to the participatory process there are different frameworks and tools used to ensure that the technical, social and political elements and contexts are considered. All these nuances are considered and feed into scenario narratives.

The World Energy Transition has developed an energy transition toolkit which can be domesticated to fit different contexts. The PULSE tool gives a quick snapshot of what energy sector stakeholders are currently concerned about. The Issues Monitor relates to policymakers' priorities. Through the Trilemma tool, an annual update on how the balance and prioritization of energy security, equity and sustainability in different country contexts is provided. Through the WEC Radar, it is possible to see what different world regions are doing. Finally, the WEC Scenarios Simulator is the basis for detailed discussion with smaller groups of stakeholders and can link to energy modelling frameworks.

It was noted that different communities use different formats and the WEC Transition Simulation offers a menu of options to detect stakeholder preferences.

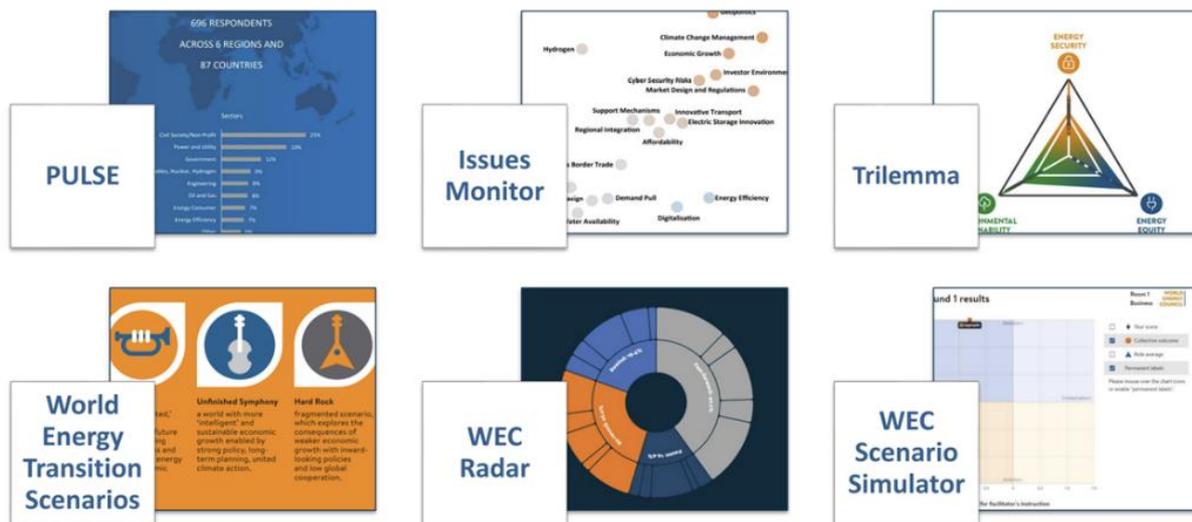


Figure 3: World Energy Transitions Toolkit

Intervention from the audience

- **Mette Hasseger** — Noted that carbon prices are often enshrined in law, and asked for clarification, especially in relation to carbon budgets.
- **James Glynn** — Clarified that annual emission targets are not scientifically based but more of a policy concept, whereas cumulative emissions were more scientific. Both of these concepts are relevant in carbon budgeting.
- **Maisarah Abdul Kadir**— Asked what the role of journalism is in the participatory process.
- **Reshma Francy** — Noted that journalism plays a role in the WEC RADAR tool. However, it is important to note that messaging from journalists can be quite varied depending on the region.
- **James Glynn** — Noted that journalists help researchers gain traction with policymakers and the broader public.
- **Mette Hasseger** — Asked how government agencies can ensure closer cooperation and more participation with the scientific community and non-governmental organisations as in some cases sensitive information cannot be shared.
- **Reshma Francy** — Noted that it is vital to ensure transparency and open discussion, however, it is also important to have clear restrictions to ensure trust.
- **James Glynn** — Reiterated that privacy concerns must be addressed however it is vital to ensure trust across the board.

Workshop 1: Group discussion session on participatory processes

Workshop Guiding Questions Group Presentations

Round 1

Clarifying the purpose of inclusive scenario development processes:

- *What are the main objectives of participatory scenario development processes?*
- *What are the main principles of such an activity?*
- *How can you communicate the purpose clearly?*
- *What is your purpose in engaging in such processes if you are not an organizer?*

Who are the stakeholders that need to be engaged in this process?

- *Who are they?*
- *Why do you need to engage them?*
- *What benefit is it for the stakeholders themselves to commit time and effort?*
- *Are there any stakeholders that may need to be included in the future?*
- *How do you ensure the stakeholders are prepared to engage?*

Round 2

What methods and tools can you use to organize such processes?

- *What type of methods and activities?*
- *Are you using specific tools in these activities to facilitate these processes?*
- *Why is this method beneficial? What is its main objective as opposed to other methods?*
- *What are the main necessities to ensure this method is successful?*
- *Do you imagine a new method will be necessary soon?*
- *As a participant, what methods do you feel are best to get your voice heard?*

Round 3

What are the main challenges and obstacles?

- *What are the main challenges in holding participatory processes?*
- *What are the main obstacles in holding these processes? (institutional/structural?)*
- *How have you attempted to solve these questions?*
- *As a participant in those processes, what have been some challenges you have faced?*

Group Presentations

Group 1- Brad Little

Round 1

- It was noted that the main goal is to achieve consensus and ensure stakeholder buy in by accounting for a broad range of views.
- The group noted that ensuring proper participation and inclusivity often comes at a high financial and monetary cost, which must be considered. For instance, in Albania, it can take up to 6 months to collect information from stakeholders, and this timeline can prove challenging for annual processes.
- Information should be accessible and cater to the different stakeholder needs, the framing of the message should ensure that all stakeholders equally contribute and feel included.

Round 2

- It is important to have sufficient financial and human resources to cater to both in-person and hybrid engagement.
- The information provided should be tailored to the diverse needs of participants, there should be translation services and the visualization tools employed to ensure adequate engagement.
- Finally, engagement should be properly structured to allow participants to delve deep into various topics.

Round 3

- Politics may pose a challenge as stronger voices may unfairly influence outcomes and bypass bureaucratic processes thereby create inequalities and exclude some stakeholders.
- Time constraints should be taken into account while ensuring a balance between inclusivity and consensus.
- Knowledge and expertise asymmetry should be addressed. To ensure citizens participate meaningfully, information should be provided prior to the commencement of the engagement process.
- Countries should develop and implement frameworks that evaluate the success of participatory process.

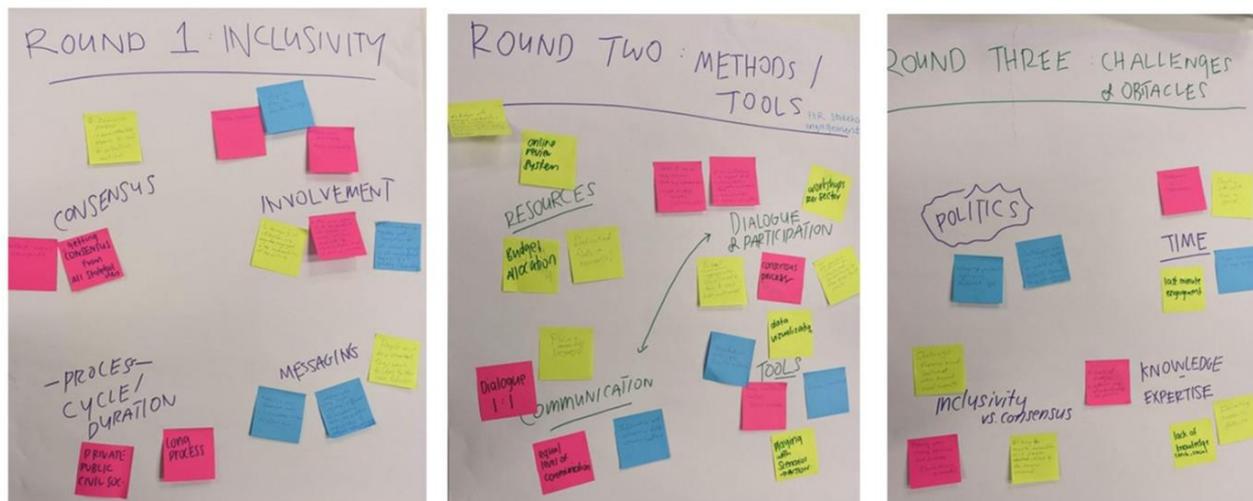


Figure 4: Group 1 Presentation

Group 2- Laura Guterrez and Reshma Francy

Round 1

- Consensus is important; however, in practice, it may be too aspirational. Therefore the next best solution is to find common ground and ensure beneficial trade-offs between the different actors.
- Finding common ground ensures continuity in Long Term Energy Planning beyond the changes in political administration which often result in different policy direction.
- Capacity Building is important to ensure that all stakeholders understand technical and economic intricacies.
- Technology Neutrality is important as this ensures that stakeholders understand the role of different scenarios and identify the least cost option.
- All stakeholders, including civil society and indigenous communities should be involved to ensure effective consultation.

Round 2

- Human connections should be cultivated and maintained to ensure all stakeholders share their views.
- Political neutrality is important in bringing all stakeholders together, additionally technology neutrality should be maintained to ensure that all options are fairly weighed.
- During engagement meetings, the world café format coupled with role playing exercises will help stakeholders communicate better and understand each other's points of view.

Round 3

- Participatory processes are often resource and time intensive, but it is vital that stakeholders understand their importance in sustainable policy making and consequently budget for the processes.
- People often work in silos, and it is important to cultivate an interdisciplinary process to combat this.

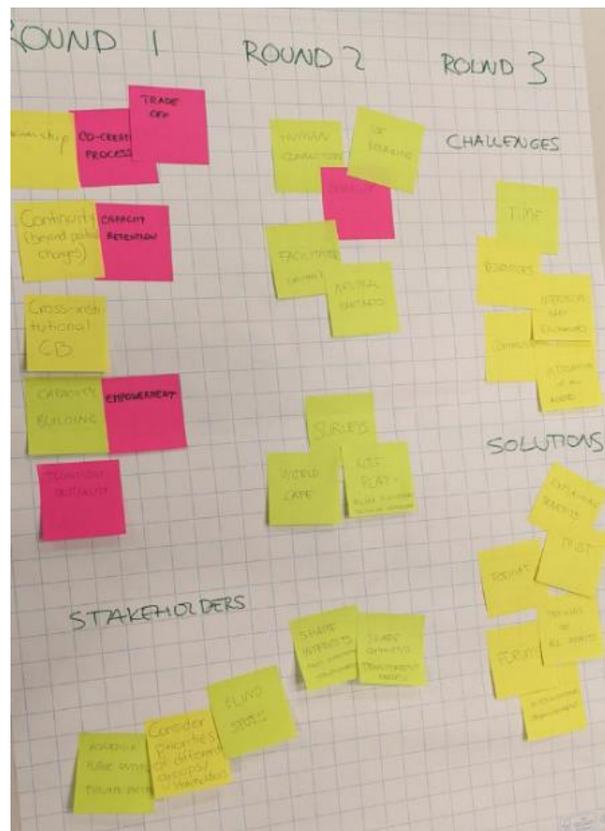


Figure 5: Group 2 Presentation

Group 3- Gildas Siggini

Round 1

- The participatory process serves to gather ideas, help stakeholders see different perspectives and enhance the quality of dialogue.
- Stakeholder consultation should be open and inclusive.
- The process should be transparent and conducive for people to freely express themselves.
- Stakeholders involved should include civil society, experts from non-engineering backgrounds, transmission system operators (TSOs), distribution system operators (DSO), industrial organisations and academia.

Round 2

- Online tools including webinars should be used as they allow for broad collaboration.
- Smaller workshops with different societal groups are essential for capturing the views of different communities as opposed to larger workshops.
- It is vital to have explanatory tutorials that provide scientific and technical insights to ensure that audiences understand the different concepts.

Round 3

- Time and human resources are a huge challenge, and it is vital that adequate resources are set aside for participatory processes.

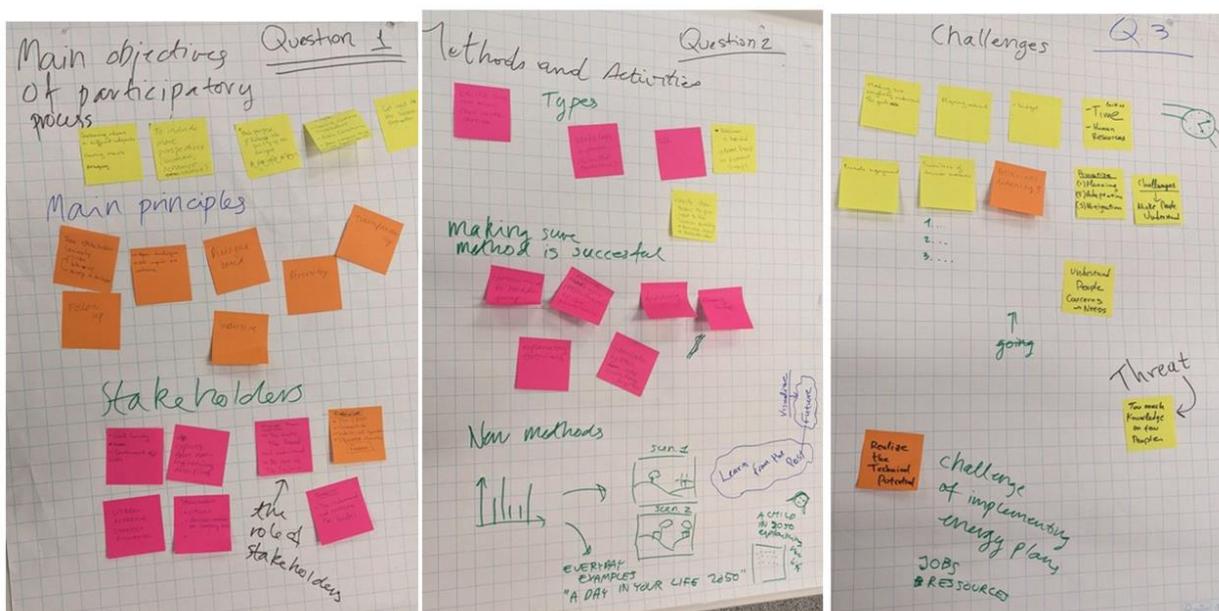


Figure 6: Group 3 Presentation

Group 4 (Online)- Léa Hayez

Round 1

- It is important to clarify scenario goals and purpose, develop a common language and ensure that all participants feel that they can influence outcomes.
- The main principles for the participatory process identified are transparency and inclusivity.
- Main Stakeholders to be involved include local communities, national and regional politicians as their involvement will ensure broad engagement.

Round 2

- It is important to use workshops and explore different ways of communicating technical topics to diverse stakeholders.
- Argument mapping is important in correcting myths and ensuring proper information and education of stakeholders to ensure effective communication.

Round 3

- It can be difficult to bring together different groups, for instance, Transmission System Operators (TSO) and Civil Society Organizations (CSO) who may have opposing objectives.
- Identifying the correct actors to engage may be difficult when dealing with a broad base of stakeholders.
- Finally, achieving consensus may prove challenging as people often have different objectives and it may be difficult to agree on concrete key takeaways.

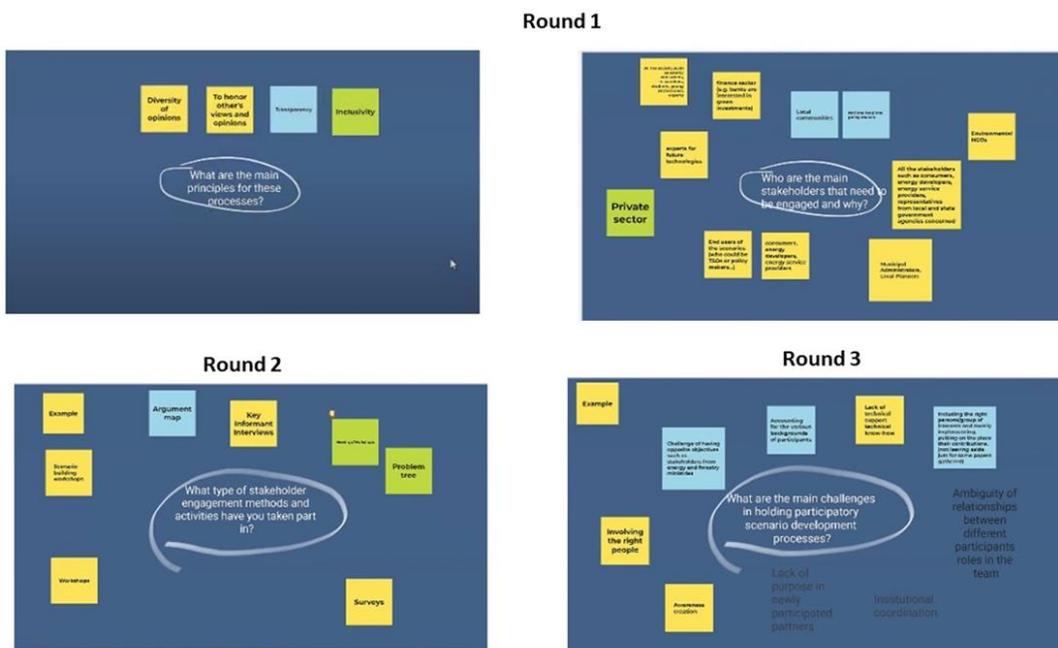
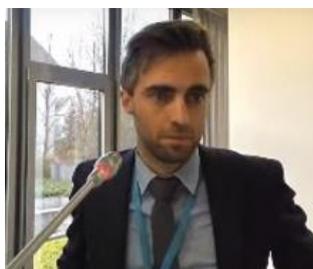


Figure 7: Group 4 Presentation

Workshop 2: Country and expert cases on stakeholder consultations



Koen Meeus — Presented on Belgium’s ‘2050 Towards a low carbon society’ federal project. The online tool showcases different pathways using a simple model which relies on a calculator approach fashioned in the same manner as the United Kingdom’s online 2050 Carbon Calculator. In developing the tool, the government engaged more than 150 academics and stakeholders to discuss assumptions, and their inputs informed the final tool, it is important to note that this exercise was done for the ‘2050 Pathways Explorer’ Expert Tool (<https://klimaat.be/2050-en/expert-tool>), of which the My2050 Tool (<https://climat.be/2050-en/my2050-tool>) is a simplified version. It was noted that the carbon calculator was a more flexible approach to symbolize transformation and disruption. Belgium’s pathways explorer is now online and showcases four different levels of ambition, website users can build their own scenarios by manipulating the levers. This tool increases transparency and forms a basis for future discussion with stakeholders.

**As of June 2022 Belgium we had updated the expert tool which now looks into climate neutrality (including carbon removals) and are in the process of adapting My2050 on the basis of the new expert tool.*



Figure 8: Overview of My2050 Interactive tool



Brad Little — In 2017, the Minister of Natural Resources tasked an expert Generation Energy Council to solicit views from Canadians on a pathway to transition to a reliable, affordable, low-carbon economy. 380,000 people joined a nationwide dialogue through in-person events and using online submissions. The final 2018 report included input from the dialogue and summarized discussions into four key pathways to a sustainable energy future. Canada’s Energy Regulator organizes stakeholder consultations with academia

and energy sector experts to ensure continuous engagement with the energy modelling community. To increase engagement with energy experts, the Energy Modelling Hub was launched to strengthen the connection between energy modelling experts and the energy policy community.



Alex Santander — Citizen participation in the creation of public policy is a fundamental principle for the Ministry of Energy. In 2011 there was the first mass protest against a large hydroelectric power plant in Patagonia and the government learnt that for effective public policy, consensus must be built. As such, the Ministry of Energy has developed the internal capacity to work with heterogeneous stakeholders using six guiding principles. Chile aims to ensure that by 2050 all energy sector policies are designed, implemented, monitored and evaluated with broad citizen participation. The need to balance the role of the state and the market was highlighted, as both actors should play an active role.



Figure 9: Illustration on Chile's Long Term Energy Planning

Intervention from the audience

How did communication with stakeholders begin in the different energy planning processes.

- **Alex Santander** — Responded that beginning communication was a very slow process as there was the need to start by training participants in planning processes. As such the first workshop focused on 'house planning' and was used as a framework to explain planning in the energy sector.

Did government officials meet with the same citizens multiple times when creating the citizen registry in Chile.

- **Alex Santander** — Responded that there are roughly 700 people participating in the citizen registry. To avoid asymmetrical information, different topics are discussed at different levels.
- **Malene Hagaard Vested** — Asked in the case where the same citizens are engaged multiple times, how much time is spent on giving background information and how much time is spent on discussing energy planning?
- **Alex Santander** — Responded that they repeat the same workshop two or three times to increase outreach.
- **Brad Little** — Reiterated that the consultation processes can be exhausting, and it is vital to provide information to participants in advance to ensure effective participation. In large countries like Canada care must be taken when dealing with all the different communities to ensure that all social aspects of planning are considered.
- **Koen Meeus** — Noted that it is important for the government to communicate why the government is pushing for a low-carbon energy transition.
- **James Glynn** — Commented on the Irish policy circuit which includes citizens' juries and legitimized citizens' assemblies which are useful in energy planning.
- **Reshma Francy** — Noted that when there are enough resources and time for discussion as was seen in the world café, it is easier to get people involved.

In Canada how are civil society participatory processes taken into account and is there a policy in place?

- **Brad Little** — Noted that there is no policy in place yet but there is a recognition of the importance of participatory processes.

Is it was important to have the mandate to consult stakeholders in place.

- **Brad Little** — Noted that there is value in having a mandate in place, but that it depended on leadership and political dynamics.
- **Malene Hagaard Vested** — Noted that in Denmark the participatory process begins in schools.
- **Koen Meeus** — Reiterated that in Belgium it is a valuable exercise which shall be continued.

Is there a selection bias when choosing which stakeholders to engage. Further, are there ways to communicate to wider audiences?

- **Koen Meeus** — Noted that in Belgium the approach towards engaging school children will ensure that there is wider citizen participation and more knowledge and awareness of the transition. .
- **James Glynn** — Noted that in some societies there are designated meetings on certain weekdays to ensure proper participation.
- **Brad Little** — Noted that government officials try to partner with local organizations to engage with a broad spectrum of local stakeholders in consultation sessions.
- **Laura Gutierrez** — Noted that intercultural aspects should be considered, in some societies like in Germany people are very forward in their discussion whereas in other parts of the world like Latin America, more tact is necessary.
- **Reshma Francy** — Noted that facilitated dialogue is important and engagement should be done where people are comfortable to ensure an effective process.

Closing Remarks



Roland Roesch — Thanked the speakers, panellists, moderators and all the participants for your valuable contribution. He noted that participants had learnt about how LTES is used as a strategic tool for policymaking to help developing and developed countries alike to better plan for a clean and sustainable future and navigate through the challenges of the clean energy. Some of the main takeaways from the forum include:

- i. A better understanding on how national long-term scenarios help governments navigate uncertainties globally, address the latest socio-technical challenges, and make the most of the opportunities offered by the transition to a low-carbon economy.
- ii. Highlighting the role of energy scenarios in capturing all dimensions of the energy sector when planning for the energy transition, given the alignment and interplay between LTES and other development strategies.
- iii. It is not possible to predict the future, but parties can understand it, prepare the future and create the future. The tools, techniques, and good practices on LTES shared during the forum allow for a proactive Clean Energy Transition.
- iv. The transdisciplinary approach to creating energy scenarios results in both quantitative results and narrative pathways, is important as it accounts for multiple dimensions with societal changes. While creating new challenges to address such outreach for more creative visualizations of these scenarios.
- v. The importance of understanding the questions driving the decision-making, the communication of the right amount of scenarios, and providing concrete messages to decision-makers was highlighted.
- vi. Accounting for 100% renewable electricity in LTES is a challenging process, and the importance of including key aspects in LTES such as sustainability metrics, measures for cleaning the power system, impacts of supply chains, materials and resources constraints, and societal impacts was highlighted.
- vii. The importance of consultation with the different stakeholder groups in each step of developing and communicating LTES emerged.
- viii. Hydrogen is part of a much bigger energy transition picture, and its development and deployment strategies should not be pursued in isolation. Setting the right priorities for hydrogen use will be essential for rapid scale-up and long-term contribution to decarbonisation efforts.

