
5th Workshop on scenario guidelines

***How to consider efficiency, demand-side, hydrogen and other technologies
in scenarios***

05 August 2022, from 09.30 to 12.30

AGENCY SUMMARY NOTES

Represented institutions	Remarks
ACER	
particular stakeholders* in the meaning of Article 12(1) of Regulation (EU) 2022/869 *the Commission, the Member States, the ENTSO for Electricity, the ENTSO for Gas, the EU DSO entity and at least the organisations representing associations involved in electricity, gas and hydrogen markets, heating and cooling, carbon capture and storage and carbon capture and utilisation stakeholders, independent aggregators, demand-response operators, organisations involved in energy efficiency solutions, energy consumer associations and civil society representatives	An overview of participating organisations is published separately

Disclaimer: these ACER summary notes serve to inform stakeholders and the public in broad terms about the discussions taking place during the workshop. The notes are not a transcript of the discussion and do not represent final positions or views of either the Agency or the participating organisations.

1. OPENING

ACER opened the workshop on **How to consider efficiency, demand-side, hydrogen and other technologies in scenarios** with the presentation of the agenda, followed by an introduction of the workshop's topic.

2. STAKEHOLDERS' IDEAS ON THE HOW TO CONSIDER EFFICIENCY, DEMAND-SIDE, HYDROGEN AND OTHER TECHNOLOGIES IN SCENARIO

ACER invited stakeholders to present their views and had circulated guiding questions to help stakeholders prepare their interventions.

The following stakeholders presented their views:

- E3G/EU-ASE
- Renewables Grid Initiative (RGI)
- Eurogas
- Eurelectric
- European heating industry (ehi)

Presentation by E3G/EU-ASE:

- Scenarios are only as good as what we want to achieve with them.
- National Grid in the UK is doing interesting things.
- Data expertise on energy digitalisation is needed.
- Better inclusion of demand side and energy efficiency first.
- Include information on how TSOs/DSOs adapt on the higher capabilities needed
- Avoid biasing investment cost assumptions.
- Test network infrastructure investments against scenarios, at least two, and its components (e.g. including utilisation rates per network piece).
- Existing investment may also be affected by energy efficiency.
- Ensure critical investment options to scenarios as "active" options.
- A demand-side project could also be a project to evaluate.
- Current N-1 assessment may not capture new risks; assessment of impact of demand-side may be useful.

Comments on the issues raised in E3G's presentation:

- In the current context, dropping N-1 energy security may not be a good idea; do we really want to mask whether or not we are able to face a crisis? Supportive of also looking at demand side impacts.
- Have to distinguish DSR and network security, and shifting loads from shedding load, as according to the stakeholder, only the latter would be 'efficiency' (note: less final demand).
- Investing more into the grid is more important due to the extreme weather changes and, even though DSR is helpful, it should not be an investment priority.
- Efficiency is important but cannot be a priority as the risk of underinvesting exists.
- In the current crisis, there are a lot of substitution to e.g. fuel in industry and coal in power

- EE1st is about what options are put on the table
- ENTSOs clarified that in the TYNDP 2022 scenarios, DSR is modelled by an activation price as a generator with a profile also provided by TSOs. The activation price is scenario dependent and stems from original TSO inputs. Peaking units are not an investment candidate. They are quantified in a simplified security of supply assessment; DSR used as a measure in the optimisation of simulation. DSR is competing with other measures (e.g. peaking units) in order to assess which measure adds more value

Presentation by RGI:

- Modelling support can come from different experts, including the European Scientific Advisory Board on Climate Change and the energy modelling community.
- Sources of unbiased information, including assessments and reports of different technological choices with time availability and real cost.
- Open source access to information enables to have a reality check of the scenarios by outsiders.
- Modelling assumptions that reflect a system that changes rapidly (e.g. DSR, market changes) and should be addressed, with a focus on implementation of efficiency first principle; checking the feasibility of hydrogen targets in view of efficiency and demand side changes.

Comments on the issues raised in RGI's presentation:

- Regarding energy efficiency we need more than just a percentage of demand reduction, but the number of renovations per year, their intensity and the price tag attached to the renovation intensity: i.e. if a full individual house renovation costs e.g. 100k euro, included lost habitation space, it means 100bn euro CAPEX per million of house renovated; constraints taken into account like the percentage of houses that cannot access to external insulation, and therefore presents more costly/ less acceptable full renovation must also be clarified.
- Granularity would be useful, including looking at impacts on household bills.
- Extensive inclusion of the house industry is needed, in order to understand what would be the efficiency savings in case of refurbishment and which would be the cheapest ways to achieve them.
- Demand-side response seems like a cheaper answer to security of supply, compared to heavy grid infrastructure investments.
- In the scenario planning, we should assume higher refurbishment rates in order to set the ground for it.
- Refurbishment rates have remained stable and low despite support efforts; scenarios should consider a realistic rate.
- It remains difficult to find information about industry's DSR potential; the crisis-related information that is collected today is about coming to a full stop and not giving insight into hour-by-hour flexibility; potentials do not look promising based on some local surveys carried out and it could be the case that more investment would be needed by the company to unlock more potential;

- Look at DSR investments as part of promoted solutions in network planning, and not only as a static backdrop assumption.

Presentation by Eurogas:

- System efficiency is key for heating during winter as it improves the final energy consumption, however, there has to be infrastructure that deliver the needed capacity in all seasons
- Realism needed as, e.g., electrification of heating may double peak generation capacity and network sizing; refurbishment rates persistent below 2%, more around 1% of building stock per year
- Noting issues of waste heat when it is a by-product of industry that follows their own business logic
- Solutions should be assessed on their overall efficiency

Comments on the issues raised in Eurogas presentation:

- The future energy system would be more resilient than today's because there will be more RES electricity and a reinforced grid, we will see much more district heating systems with multiple sources, a much stronger sector coupling, more demand side management options, gas power plants remain there and be used with less hours and as back up (which has a cost but gives resilience) and we will have a lot of mobile (cars) and static batteries in the field
- The solution of hydrogen boilers at household level is challenged strongly by several stakeholders:
 - The importance of direct electrification and efficiency of the entire system is significant.
 - Electric heat pumps don't have the potential to decarbonise the heating sector until 2050. There are many solutions and hydrogen may have potential.
- ACER notes the need for realism checks and a process to debias assumptions that go into the scenario building process.
- Manufacturers of end-user technologies offer solutions without particular interest of what the user buys; moving their resources to other technologies in the portfolio based on expectations after policy objectives change.
- Green hydrogen will decrease the (peak) load on the electricity grid at the TSO and DSO level, otherwise RES will be curtailed.
- Hydrogen boilers without energy efficiency will mean very high bills for households and limit the smartness/response capability of the energy system. It's difficult to see them take off other than in limited circumstances (once we have the hydrogen).
- Regarding the increase of grid capacity, policy makers and grid operators are the main actors in this process. Distribution networks play a major role in this process and there is a great potential.
- Need to live in the real world and we need to accept large scale development of new linear developments i.e. pipelines or lines electric/gas/rail/road/etc. It will take time and yet the speed of development of new users and energy providers will accelerate and is able to develop fast. It means the current crisis in matching stakeholders and political

objective pace of development to meet their needs will only increase. As others said, we need a scenario[s] that show this as well as everything going to plan. We also need to use not one but all scenarios to test the planned proposals to see they can cover the range of possible outcomes. This discussion on efficiency means efficiency in entire system development/design and not just parties connected to the network but the network itself. In the end it is highly likely we will need to start developing anything that can help rather than being too selective, many will not be delivered as planned and for a need/problem that was not envisaged. We need to start to develop multiple solutions to need/problems for a variety of solutions to have any chance to meet our objectives and manage uncertainty; need a cocktail of solutions and a range of scenarios to prepare for many outcomes

- One could argue that this is a legal and regulatory question and that scenarios need to operate within the given legal and regulatory framework. Hence, this would not be a topic for this group. But one could also argue that scenarios should increase transparency on what may happen and eventually may even trigger changes in the framework. In this particular case this would mean that scenarios should show the impact of delayed infrastructure deployment with the aim of avoiding or at least reducing the delay.

Presentation by Eurelectric:

- There has to be an increase in direct electrification ambitions, as is the most energy efficient way of decarbonising and reaching net-zero
- Energy efficiency should be considered on the total primary energy demand/supply.
- Sector coupling modelling was improved in the last TYNDP process; however, there is room for improvement in power to gas synergies, including a better assessment of adequacy issues or network congestion.
- In terms of technologies, ancillary services should be integrated in the model.
- The role of offshore hybrid should be underlined into modelling, as well as assumptions regarding CCS.

Comments on the issues raised in Euroelectric's presentation:

- Direct electrification is the most energy efficient way: challenging this affirmation is one of the main goal of this TYNDP exercise, whether this is true once network, flexibility and resilience costs are taken into account.
- Electrification in itself is not a resilience solution: French electricity prices for this winter are sky high, not pointing toward a comfortable situation of the grid.
- ENTSOs: There is a comparison of TYNDP impact assessment in terms of direct electrification; both direct and indirect electrification are important.
- Focus on security of supply and improve sector coupling in the network assessment.

Presentation by the European Heating Industry (ehi):

- Underline the fact that there is not only one solution regarding energy carriers, but a “cocktail” of different solutions; example of hybrid electricity-gas boiler as sector coupling at building level.
- Zero emission buildings are achievable under multiple scenarios as illustrated by a Guidehouse¹ study performed on behalf of ehi.

Further debate:

ACER launched a poll asking stakeholders: are the current scenario processes sufficiently integrating alternatives to infrastructure?

18 responses in total, 13 of them voted No, while only five Yes. Additional comments:

Additional comments stated that:

- Few workshop participants voted.
- There is a broad meaning of electrification in the industry.
- Contrasted scenarios on electric mobility are necessary to understand the grid and capacity development.
- Electric mobility touches more on the storage capacity and its use on providing to the market as a storage instrument.

3. CLOSING SESSION

Finally, ACER thanked all stakeholders for their active participation in the workshops and asked the stakeholders to give feedback on how they evaluate the workshops.

ACER also explained how the process will continue and culminate in a broad public consultation in October 2022.

ENTSOs thanked participants for the many suggestions raised in the workshops and invited the stakeholders to contribute also to the scenario development for the TYNDPs 2024

¹ Guidehouse, 2022. Decarbonisation pathways for the European building sector, study commissioned by ehi, association of the European heating industry.