Answer received to public consultation Adequacy & Flexibility 2024-2034

Keep the lights on (citizens)

Answer to the public consultation on the scenario and methodology document of Elia dealing with the adequacy and flexibility study 2024-2034.

General:

KTLO welcomes the opportunity given by Elia with this public consultation.

The report highlights the fact that in the beginning of 2023 some major decision has to be taken by the government. Unfortunately, our general impression is that this study is far from complete. So we see only two solutions: postponing this public consultation or making enough scenarios to cover all possible decision-outcomes (ref p9 and others). Indeed, referring to Elia's statement in chapter 2 "given the uncertain context", this uncertain context is only increasing further, therefore we would expect Elia to take sufficient margins and provide recommendations about how to ensure the grid remains reliable and resilient within that uncertain context by presenting scenarios (e.g. concerning import risks, see further in our specific questions).

Prices used in the study are underestimating the real cost:
a. certainly for wind/solar as the ghost capacity needed to cover the non-operational time (about 90% for solar and between 70% and 80 % for wind) are not considered in the price of this renewable energy. This is misleading and disinformation.
b. The system cost of renewables (primarily wind and solar) is not considered adequately. Scholars claim that the integration cost may equal up to 3x the production cost.
c. Gas prices are non-compliant with current levels and also the forecasts are not in line with what experts say the prices will be in the years to come.

One other major shortcoming is limiting its calculations to a time tick of one hour. All events of less than one hour will be completely missed. Integrating over one hour may mask severe blackouts without notice.

In some parts of the study it is as if the nuclear power plants are omitted. We would insist on taking them along as they might be the only reliable source for covering the base load, in the future as well as today.

Specific questions:

Can you please comment on how consistency between core region level assumptions is being verified? How do you ensure that each country takes compatible assumptions? For example, how do you ensure that two countries do not expect imports from their neighbours at the same time? Especially since the "climate year" statement that neighbouring countries are likely to have similar scarcity in wind/solar energy ("The meteorological data is also geographically correlated, as European countries are close enough to each other to be affected by the same meteorological effects").
The import from France and Germany often referred to, seems non-existing as France became a net

importer and Germany is struggling with its own supply and had to reopen pit and coal plants.

Assumptions about unit availability over the years are considered as inputs for scenarii. However, it would be of added value to see recommendations about postponing the phase out of some production units and about adding some margin for potential delays in delivering new capacities (especially in a context of crisis/geopolitical conflicts/inflation that could have an impact on those important industrial projects).

A considerable growth of wind/solar capacity is considered. Several questions related to this fact:
-- Especially for onshore wind, but in general for all new capacity planned: Have the potential new capacity volumes been compared to actual available projects/sites/permitting possibilities? Has NIMBY (not in my backyard) been considered?
-- Especially for Solar: Is this compatible with production capacity and material availability?
-- Seeing that most of the countries evaluated have important growing assumptions in renewable capacities, is this compatible with global market delivery capability (materials, factories, technical and operational talent, ...)?
– The volatility introduced to feed the base load (today covered by mostly nuclear and gas) by using primarily wind and solar energy, comes with a major threat to continuity of supply. Compliant with basic system dynamic principles, volatile and non-addressable sources should be minimised in the energy mix, not maximised.
This same volatility almost caused a breakdown of the Belgian electricity system in early July 2022, when suddenly and in a never before seen amplitude, all offshore wind was cut to zero in a few minutes time. The reserves of Coo had to be used for keeping the lights on instead of being used for covering peak consumption. Luckily the nuclear power plants were still active and constituted a firm part of the base load. If the same base load would have been provided by offshore wind, a major blackout would have happened. In the light of the foregoing we would like to see a few “extreme” situations in the calculations where at some point, and inspired by some real events (as the one of beginning of July 2022) suddenly and within a very short time all off-shore capacity is switched off. We would like to see how the system would react to such a disruptive event.
– The capacity in Belgium should cover the needs in ALL circumstances (excluding major exceptional outages of one or more major power plants), for example and in particular also during a ‘Dunkelflaute’. Can this be guaranteed? If yes, under which assumptions?

Major cities in Germany started exercising blackouts in the range of a few minutes to several hours. It would be recommended to do the same in Belgium, asking how we will foresee enough capacity (and of which type) to cover blackouts ranging from less than a minute, to several hours.

2.4.1 figure 10 mentions "excluding electrolyzers demand" - Why? Where are they considered then?

For each graph, we advise to add previously modelled data with actual data to give the reader an impression about the accuracy of previous projections and discuss the relevance of the current margins considered.

Figure 18 : the 'high' curve could consider some additional capacity for projects not yet the object of a request.

Just above fig 18 "It must be noted that a significant share of this additional electricity demand is focused on the electrification of heat (industrial heat pumps, electric steam boilers, electric ovens…)

& other types of flexible devices. Therefore, not all of this demand will result in additional peak demand and will likely be able to deliver flexibility services." What portion of these users is considered "flexible"?

A few questions surrounding the adoption of EVs:
– Figure 23: EV public charging points should not be considered as flexible as it could be anticipated that those points will be subject to limited time (in order to make them available for several EVs per day). Therefore an EV parked in a public charging point should often be considered charging.
– Figure 23: what would be the impact of an EV being used as a home battery (with a bidirectional charger)?
– Figure 26: is it considered that EV charging (even with smart flexible solutions) would still charge directly to a minimum level before enabling flexibility (natural first until for example 50% charge then only flexible)?

We see major shortcomings and underestimations in the forecast of the energy demand:
– Recent studies pointed out that only the electric lease cars in Belgium would require an extra power plant like Doel 4. So expanding electric vehicles to the full fleet of Belgium comes with an extra demand of several times the current total energy.
- The energy needed for heat pumps is largely underestimated and does not consider the inefficiency of the system at lower temperatures.
– The need to cover the rise in digitization of services is largely underestimated. It should not be limited to data-centres alone.

Figure 30 : CO2 prices - what are the sources? Given the increase over the last few years, the projected growth seems far too low. Especially as it was already too low in the previous adequacy study compared to the actual price observed recently (40€/t compared to 80 seen).

Figure 31 : Does this include risk of delays (permitting or local actions for example)?

2.9.3 Netherlands > how is the 1.4GW hydrogen produced?

We deplore that in the text (p37) the new generation power plants aren’t considered. However, they might be the solution to maintain supply stability and keep the cost acceptable.

The figures on p43 (concerning Germany) do not comply with real figures.

It would be great to integrate and map this report to previously released studies such as:
https://www.vlaio.be/nl/nieuws/naar-een-koolstofcirculaire-en-co2-arme-vlaamse-industrie
https://perspective2050.energyville.be/