Mid-term Adequacy Forecast 2017 (MAF 2017) - ENTSO-E's answers to the comments received during the public consultation

Nine stakeholders[1] replied to the MAF2017 consultation in autumn 2017. Stakeholders recognise the usefulness of the MAF, especially with the methodological improvements and the additional sensitivities performed. The present document focuses on suggestions for further improvements in future MAFs.

Proposals and comments received from stakeholders will be considered by ENTSO-E for further data publication and preparation of MAF2018, even if some suggestions might require time and investigation before their implementation can be confirmed in future MAFs.

Generation viability, mothballing, decommissioning, Capacity Remuneration Mechanisms (CRM)

Stakeholder's feedback: Perform viability checks per fuel category (based on revenues number or running hours) and clearly distinguish mothballing from capacity exit.

ENTSO-E's answer: The differentiation between mothballing and capacity exit shall be better highlighted in the coming report. Also, economic viability checks by generator category are investigated for the 2018 edition of the MAF.

Mothballing will go hand-in-hand with new-build (RES + DSR + storage + interconnector)

ENTSO-E: Indeed, a sensitivity on generation side only can be considered as a stress test: not necessarily realistic, but showing the impact of one parameter. We might consider possible sensitivities linking less generation with more DSR and local storage (building unplanned interconnectors within 5-8 years might not be realistic, as new interconnection projects generally take at least 10 years). Still MAF should, in doing so, preserve its "monitoring role" and remain neutral regarding the possible technological solutions or choices to be considered when filling gaps of missing capacity.

Include more sensitivities (e.g. accelerated coal phase-out)

ENTSO-E: Sensitivities on generation are under consideration for MAF2018, focusing on the year 2025. A coal phase out sensitivity could, indeed, be included.

Add an assessment with predicted Capacity Remuneration Mechanisms (CRM)
ENTSO-E: Current capacity mechanisms have different approaches between European countries, as highlighted in the ACER's "Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2016"[2]. Furthermore, getting available and reliable information about predicted CRM for the next 10 is very challenging. The contribution of CRM might be included in future MAF reports in relation to the aforementioned economic viability checks.

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[1] EDF, EDISON, ENEL, ENGIE, EURELECTRIC, HSE Group, IBERDOLA, RAP, Sandbag
[2] https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Market%20Monitoring%20Report%202016%20-%20ELECTRICITY.pdf (page 56)

Consider the impact of extreme weather on the outage rates (e.g. outages can increase in cases of low river levels in a dry year, or of warming of rivers during a heat wave, preventing normal cooling operations in conventional power plants). Also consider the aging of nuclear power plants, which is inducing an increase in unavailability factor.

ENTSO-E: This relevant and challenging topic needs further investigation indeed, and is already in scope within the roadmap of future MAFs. Our probabilistic calculations generally use large sets of historical data records, but a statistical correlation of extreme weather with outage rates might require an even larger data sets than those currently used since the number of such extreme events is typically very low.

Demand and distributed storage

More sensitivities with higher Demand Side Respond (DSR) and batteries at consumer level

ENTSO-E: Demand Side Response (DSR) assumptions have been incorporated into the MAF process. However, current assumptions in terms of volume of DSR are subject to a significant uncertainty and are not consolidated or agreed at EU level. For instance, price bands for DSR activation should be based on forecasted expectations of future prices, rather than current prices. For MAF2018, ENTSO-E strives to add a new sensitivity with higher DSR and possibly battery management at consumer's level. Stakeholder's contribution (e.g. available published paper on DSR) is welcome to create these data assumptions.

Interconnections and Flow Based

Implementation of Flow based in the MAF

ENTSO-E: Flow-based methods currently deployed within national studies by some TSOs in CWE and recently adapted also within the PLEF regional study will be considered to improve the MAF methodology in MAF 2018. It should be noted that the current flow based implementation above mentioned experience is limited to the CWE region (Continental West Europe) and for the short-term horizon (1-3 years). Investigations are planned to consider the extension of the scope in future MAFs, probably after MAF 2018.

Furthermore, also a "zonal flow-based" approach, is currently being tested, within the so-called identification of system needs of the TYNDP2018, with the focus of aligning commercial exchanges to physical flows. Such method might also be considered for possible application in future MAFs.

Variability of interconnection capacity through the year

ENTSO-E: We have considered to take seasonality of transmission capacity into account. We observed that loss of load expectation occurred mostly in winter, but it's true that southern countries with high cooling and limited margins could have issues in summer (e.g. Italy). The impact of seasonality is hence quite local and ENTSO-E will hence focus on increasing accuracy of base case transmission capacity data (e.g. with flow based), with possible ad hoc sensitivities.

NTC with third countries (not in the model) are static. Include price dynamic for exchange with these countries

ENTSO-E: This, indeed, concerns a limited number of countries (e.g. Finland-Russia). We would need detailed inputs in order to perform these analyses, which are i) not easy available (5-10 year ahead price forecast is challenging), ii) outside the framework of data collection within ENTSO-E members. Furthermore, the non-modelled neighbouring countries (e.g. Russia) have complex and not easy predictable geopolitical situations that make the exercise even more complex. Any concrete proposal from stakeholders on that topic is welcome.

Climate data (temperature, wind, PV, hydro)

Proposal to investigate synthetic probability distribution, based on historical data. Less synthetic years than historical data could also reduce time of calculation, potentially allowing more sensitivities.

ENTSO-E: The question of synthetic years could be relevant if more realistic, even if it would probably not reduce the number of Monte Carlo years needed to reach robust convergence of the results by much, hence the calculation computation time needed. In any case, ENTSO-E is continuously discussing with different meteorological experts to assess whether, for instance, climate change could be modelled through synthetic distributions, especially regarding temperatures.

Improve hydro management and hydro infeed

ENTSO-E: Our Pan-European Climate Database (PECD) is currently being extended to consider geographical correlations of hydro production with hydrological conditions - e.g. rainfalls and melting snow. We work in cooperation with different European climate experts to this purpose. Stepwise, improvements are expected in future MAF editions.

Flexibility

Enhance the assessment, for instance by adding criteria "Insufficient Ramping Resource Probability"

ENTSO-E: flexibility is indeed a key topic considering the fast change of generation mixed with increased variable renewables. Improvements are currently investigated for possible application in MAF2018, building on the know-how created in our 2015 mid-term adequacy report (SO&AF2015).

Transparency and other topics

Enhance transparency of inputs & outputs (e.g. planned/forced outages, reserves, RES factors, LOLE/ENS for sensitivities, DSR)

ENTSO-E strives to reach a high level of transparency and agrees to extend publication scope, as long as the data are not considered confidential. Transparency also implies responsibility, not only of the publisher, but also of the recipient. Improvement of these key parameters would be possible through discussions with market parties who can provide more detailed technical data and feedback regarding said data (e.g. the different generation technologies available). Such exchanges could improve the available data by TSO for MAF. ENTSO-E welcomes such interaction with stakeholders since the results should always be understood within the data and assumptions used.

Publish information on simultaneous scarcity management

ENTSO-E is considering how to detect situations where simultaneous high-energy is not being served to several neighbouring countries (i.e. simultaneous scarcity situations) by post-processing the results obtained from our market modelling simulations.