**HAIPP's response to ENTSO-E's public consultation on MAF 2019, January 2020**

5. **What is your opinion on the MAF 2019 outcomes and, especially, on the low-carbon sensitivity analysis?**

In principle, we agree and we consider that this kind of analysis should be a permanent part of any future MAF study since it is a significant modelling improvement. The new European Green Deal foresees higher emissions reduction by 2030 (50-55% instead of 40%) which implies that coal and lignite-fired units EU-wide will be decommissioned at a faster pace than originally expected. Greece's final NECP provides such an example. Taking into consideration the final and updated Greek NECP, the lignite capacity is going to be decreased to 2.256 MW by the end of 2021 and even with the commercial operation of Ptolemaida V (610MW), in 2022 it will be further decreased to 1.752 MW. While the MAF's low carbon scenario indicates that 2.450 MW of lignite-fired and 4.900 MW of gas-fired units will be operational in Greece in 2025, the updated Greek NECP, as already submitted to the EC, foresees just 700 MW of lignite-fired and 6.900 MW of gas-fired units. Therefore, the decommissioning of lignite plants in Greece is actually planned to happen at an even faster rate than the one envisaged in the MAF 2019's low-carbon scenario. Also, the MAF 2019 mentions that the adequacy problem that was identified in MAF 2018 for Greece during the year 2020 is going to be tackled thanks to the anticipation of an increase in thermal capacity. According to NECP this increase is not going to take place in 2021 and therefore cannot be considered as a base scenario for Greece for 2025. Additionally, taking into consideration that the flexible gas-fired units will have to serve both peak demand and the daily ramping needs due to high intermittent RES penetration, we believe that the MAF should further investigate what the LOLE index will be with this new generation mix.

One last comment concerns Crete (GR03), where apart from the first phase of the interconnection that is supposed to be functional by 2021, no thermal power is going to be installed. Since all the power plants on Crete are aged and most of them do not comply with the emission values of the IED we believe that specific attention should be given to this island and to the sensitivity analysis based on the final operation of the interconnection cable.

6. **How do you evaluate the improvements made in the input dataset, i.e., unit-by-unit thermal generation data and a complete set of hydro data for all climate years.**

Some old lignite units in Greece may have an efficiency rate lower than 30%. At the same time the one new lignite unit expected to come online within the next years will have an efficiency rate of 41,5% (according to PPC press release) which is lower than the 44% threshold included in MAF 2019 data set.

7. **From your perspective, which additional methodological improvements or insights would you prioritize for the future MAF assessments? Please explain in line with the specific needs of your field of activity.**

The MAF 2019 is lacking a scenario based on mothballing and/or the market design. However, such a scenario is essential(following the example of the 2017 edition's mothball scenario) due to the fact that in the future, the absolutely necessary flexible dispatchable units will face less operating hours, due to increases in RES production- and thus will face economic viability difficulties without being able to fully cover their costs from the energy markets. This cost recovery will be highly dependent on the market design applied in each area i.e. available capacity markets, along with well-designed and well-functioning energy and ancillary services markets, will increase the probabilities of safeguarding the necessary level of system reliability (as expressed by the LOLE index). Of course, this remark applies to both existing and future investments. More specifically, the final Greek NECP foresees 6.900 MW of gas-fired units in 2025, and the investments needed in order to reach this figure will be attracted -among other reasons- by the operation of the long-term capacity market, as illustrated in the NECP. In the absence of such a capacity market, some new investments as well as the future operation of some existing units may become questionable. This will result in higher LOLE figures because it will become more difficult to deal with both peak demand and daily ramping needs. As it is already established in Regulation 2019/943, the adequacy assessment should also take into consideration an economic viability assessment of generation assets together with an analysis of additional scenarios including the presence or absence of capacity mechanisms.

Additionally, we suggest that the MAF should include a slower RES-penetration scenario. Without questioning the 2030 RES target, it is probably more accurate to assume that most of the new expected RES projects will be realized in the second half of the 2020s and not applying a quasi-linear penetration throughout this decade. Reforms in RES licensing, spatial planning and market design (especially as far as the balancing markets and the PPAs are concerned) are ongoing in many EU countries. These reforms will probably deliver tangible results by the mid-2020s, allowing for an accelerated RES penetration thereafter. Greece is not the only country which faces such problems and where such reforms are currently under design and/or consultation. Onshore wind energy in Germany is almost stalled in 2019 due to spatial planning issues. Therefore, we believe that the final MAF 2019 should include a slower-RES-penetration scenario as well.

9. **Please tell us below if you have additional suggestions or comments?**

We'd also wish to welcome ENTSO-E's commitment to develop a methodology for the definition of the value of lost load, the cost of new entry in generation and/or demand response and to establish the reliability standard. As regards demand response in particular, it would appear the MAF doesn't assess the contribution of such "source", though -as acknowledged in the relevant 2016 JRC Report (https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/demand-response-status-eu-member-states)-
"*demand Response is able to increase the system's adequacy and to substantially reduce the need for investment in peaking generation by shifting consumption away from times of high demand. It can act as a cost-effective balancing resource for variable renewable generation*."