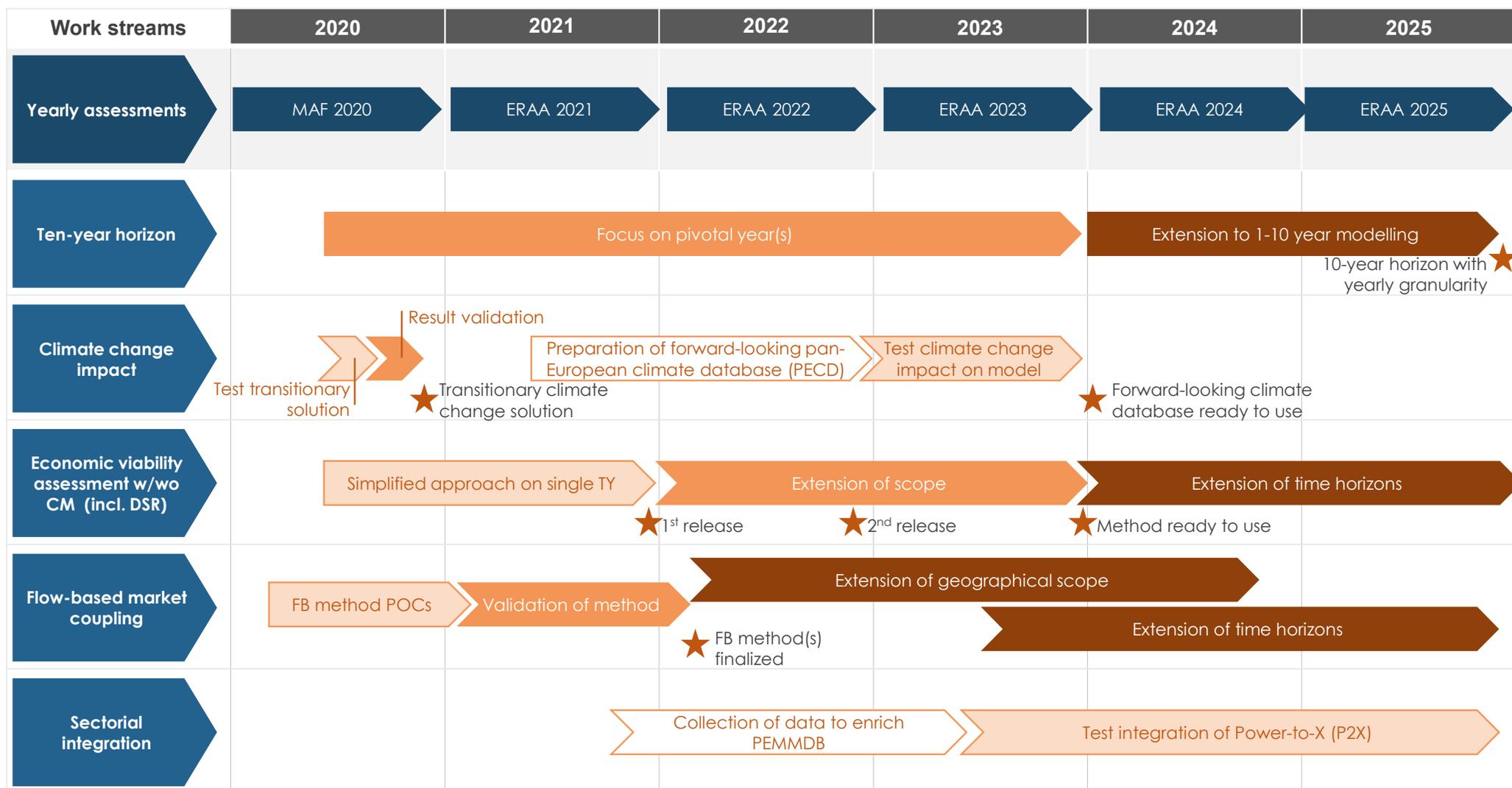


Resource Adequacy implementation Road Map

10th of December 2020

European Resource Adequacy Assessment Methodology Implementation – Principle Roadmap



ERAA implementation roadmap background - 1

The legislative Clean Energy for all Europeans, specifically the Article 23 of the Electricity Regulation 2019/943*, has placed resource adequacy in a central position in European energy policy. In the current fast-paced landscape, the European resource adequacy assessment (ERAA), i. e. the annual screening of adequacy in Europe for the upcoming decade, must provide input for strategic decisions regarding, for instance, the introduction of Capacity Mechanisms. To address these needs, the methodology for assessing adequacy in Europe shall undergo significant improvements and scope extensions, compared to its predecessor Mid-term Adequacy Forecasts published by ENTSO-E (the latest one being the MAF 2020**). The target methodology, the ERAA, was approved by ACER on 2 October 2020*** and its stepwise implementation will begin in 2021.

The implementation of the ERAA will practically lead to the introduction of numeral additional methodologies and features which translate to significant implementation challenges for the future pan-European and regional adequacy assessments. Due to the complexity and the number of methodological updates, the implementation will be achieved by ENTSO-E in a stepwise manner, which is illustrated in the “Implementation Roadmap” published below.

The most critical and complex to implement elements of the ERAA include four methodological improvements and additions along with an increased resolution of the investigated time-horizon, presented in the form of five different work streams that will step-wisely lead to the target methodology towards the end of 2025. ENTSO-E is prioritizing the five different streams based on their complexity and time needed for each of them to reach maturity, starting from the implementation of an Economic Viability Assessment to the replacement of Net Transfer Capacities by a Flow-Based Market Coupling approach, the consideration of the Climate Change impact on assessing adequacy and, finally, the sectorial integration. ENTSO-E will focus on building knowledge and ensuring the robustness of each methodological feature outlined above, before their implementation. When the necessary level of maturity is reached and tested on pivotal target years, the time horizon resolution will then increase to reach the targeted 10 years ahead annual granularity.

In the following lines, we briefly explain the main methodological features along with their implementation roadmap.

Climate change

The impact of climate change on adequacy assessments can be significant, considering that an important element of the adequacy models is the underlying climate-dependent data used as input. ENTSO-E is working with climate and data experts to prepare a database that will reliably reflect the impact of climate change on climate variables and, thus, on adequacy simulation results. In the first ERAA publication, i.e. ERAA 2021, given the limited available time for such a significant improvement, ENTSO-E is working with experts on a temporary and simplified solution for updating its Pan-European Climate Data Base (PECD) to conform with the impact of climate change. Our efforts will continue during the upcoming three years, targeting to reliably incorporate in our models the impact of climate change by the end of 2023.

* - REGULATION (EU) 2019/ 943 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL - of 5 June 2019 - on the internal market for electricity (europa.eu)

** - <https://www.entsoe.eu/outlooks/midterm/>

*** - https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Individual%20decisions%20Annexes/ACER%20Decision%20No%2024-2020_Annexes/ACER%20Decision%2024-2020%20on%20ERAA%20-%20Annex%20I.pdf

ERAA implementation roadmap background - 2

Economic Viability Assessment (EVA)

The EVA is a methodological element in the target ERAA methodology that aims to identify changes in the capacity mix, stemming from economic reasons that could affect the likelihood of retirement, mothballing and new investments in capacities. ENTSO-E has already started building knowledge on this methodological element under the context of MAF 2020* as a proof of concept but not as part of the main adequacy calculations. Our next step for the EVA implementation will be a simplified implementation of the methodology on a pivotal target year, for both scenarios with and without capacity mechanisms, that is targeted for the upcoming ERAA 2021. Progressing in a stepwise manner the EVA scope will be extended, and the methodology is expected to be ready and operational by the end of 2023 ("prototype product") and, finally, implemented for the whole assessed time horizons ("serial product") by the end of 2025.

Flow-Based Market Coupling (FBMC)

The FBMC is a methodological element in the target ERAA methodology that aims in improving the calculation and modelling of the available trading capacity between bidding zones in the energy market for electricity. ENTSO-E has already started testing FBMC as a sensitivity since MAF 2019, focusing on the Central-West European region. Furthermore, along with the EVA, an expert group was formed at ENTSO-E to work on a proof of concept for this methodological element under the context of MAF 2020**, aiming to set the basis for a robust methodology. The first validation of this method will be performed in ERAA 2021 for a single target year and a reduced geographical area. The extension of the geographical scope will follow in ERAA 2022 and ERAA 2023, targeting an full industrialisation for the whole assessed time horizons ("serial product") by the end of 2025.

Sectorial Integration

The implementation of sectorial integration in the ERAA will build on TYNDP and scenario building ongoing gained experience in this field. Using these synergies, the data structure and the modelling of the future ERAA assessments will be progressively upgraded.

* - For more information in MAF 2020 Executive Summary, Section 3.1 https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/MAF/2020/MAF_2020_Executive_Summary.pdf

** - For more information in MAF 2020 Executive Summary, Section 3.2 https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/MAF/2020/MAF_2020_Executive_Summary.pdf