

THE NETWORK CODE DEMAND RESPONSE: IMPLICATIONS FOR THE PROCUREMENT OF SYSTEM OPERATOR SERVICES IN AUSTRIA

Gerald KALT¹, Alexander KABINGER¹, Christine MATERAZZI-WAGNER¹

Background and motivation

The EU Network Codes are legally binding implementing regulations that govern cross-border electricity trade, system operation and conditions for grid connection (see [1]). With the “Network Code Demand Response” (NC DR), the European Commission aims at establishing an EU-wide harmonized framework for the integration of demand response and other (distributed) flexibility resources in transmission and distribution-related services and electricity markets. Based on a Framework Guideline prepared by the Agency for the Cooperation of Energy Regulators (ACER), the associations of European electricity system operators (SO) ENTSO-E and EU DSO Entity have been tasked by the European Commission to prepare a draft proposal for the NC DR until March 2024. At the time of writing this paper, a preliminary draft by the system operators (“SO draft”) is available [2]. With the “Clean Energy Package” (see [3]) not yet fully implemented in Austria, major changes to the national electricity market rules are pending. The provisions of the NC DR will set the framework and rules for demand response and distributed flexibility, and therefore deserve high attention. This paper aims at giving an overview of the scope of the NC DR and highlighting implications for the Austrian legal and regulatory framework, focussing on the procurement of system operator services (SO services).

Methodology

The methodological approach comprises an analysis of current practice of SO service procurement and the regulatory framework in Austria, the relevant EU legislative acts and provisions of the SO draft. For each SO service addressed in the NC DR, namely congestion management (CM) on DSO and TSO level, voltage control and balancing, the current practice in Austria is discussed in the light of existing and prospective EU regulations. Action points for enabling and promoting the participation of demand response in SO services are identified and suggestions for legal and regulatory changes are derived. The paper concludes with reflections on further selected topics addressed in the NC DR and their implications for the Austrian legal and regulatory framework, including the Electricity Market Code (SoMa) and the technical and organisational rules (TOR) issued by E-Control.

Results and conclusions

The NC DR builds upon EU regulations prescribing market-based procurement for all SO services and requiring member states to ensure non-discriminatory market access for demand response (Art. 17, 31, 32 and 40 of Directive (EU) 2019/944 [4]). These regulations are yet to be implemented into national legislation (with the forthcoming Electricity Market Law “EIWG”). Derogations from market-based procurement are possible; prerequisites for derogations differ between SO services and leave some room for interpretation. The NC DR further elaborates on how markets shall be established to ensure efficiency and non-discrimination, on principles for market design, coordination between SOs, and on topics concerning market interaction, non-market-based measures, and on procedures towards partial EU-wide harmonization.

With regard to CM, Art. 13 of Regulation (EU) 2019/943 [5] stipulates that the resources for redispatching shall be “selected from among generating facilities, energy storage or demand response using market-based mechanisms”. Contrarily, the present redispatch regime in Austria prescribes cost-based remuneration (section 23, para. 2, item 5 of the EIWOG 2010), which eliminates the risk of strategic bidding inherent to markets with low competition. On the downside, the current regime is not suitable for incentivizing the participation of demand response in CM. The NC DR describes principles for procurement and pricing for market-based CM, for procuring by tender procedures and coordination

¹ E-Control (Energie-Control Austria für die Regulierung der Elektrizitäts- und Erdgaswirtschaft), Rudolfsplatz 13a, 1010 Wien, Tel +43 1 24724-0, office@e-control.at, www.e-control.at

and interoperability with other markets. For most of these principles, market-based procurement is a necessary precondition. Legislative changes to the Austrian redispatch regime are thus indicated. A hybrid (cost- and market-based) redispatch model (see [6]) could prove as a reasonable compromise between maintaining the benefits of the established cost-based approach for generators (especially safeguarding against strategic bidding behaviour) and incentivizing the participation of demand response.

While on transmission level, the legislative framework for CM needs to be reconsidered, it is yet inexistent on distribution level. According to Art. 32 of Directive (EU) 2019/944, the framework shall “allow and provide incentives to distribution system operators (DSOs) to procure flexibility services, including CM in their areas, in order to improve efficiencies in the operation and development of the distribution system”, and requires DSOs to coordinate with the TSO. The regulations on redispatch according to Art. 13 also apply to distribution grid operation. Regulations on CM on distribution level thus need to be introduced into the national legal framework, with due consideration of Art. 13 and the provisions of the NC DR. The SO draft elaborates on the alternatives for DSOs in managing grid congestion, which include “grid investments, non-firm connection agreements, grid-technical measures, including non-costly remedial actions, and market-based procurement”. Regarding market-based procurement, it prescribes that SOs shall commonly propose national terms and conditions, suggesting that there should be a common market for DSO and TSO procurement. Since separate markets for each service entail the risks of insufficient liquidity and low efficiency, it seems crucial that market designs are harmonized and grid users offering flexibility for CM can be activated by both DSOs and TSOs.

For voltage control, there are currently no legal provisions in Austrian legislation requiring SOs to apply a market-based approach. Reactive power management is regulated in grid connection rules and system operators' terms and conditions. Bilateral contracts between TSO and generators stipulate cost-based remuneration for reactive power provision. The SO draft prescribes that the procurement of active power for voltage control shall follow the same rules as CM. For reactive power procurement, the provisions of Art. 31 (7) and Art. 40 (5) of Directive (EU) 2019/944 imply market-based procurement as the standard approach – unless the national regulatory authority (NRA) has granted a derogation. The SO draft specifies that when mandatory requirements for grid users do not provide sufficient reactive power needed for voltage control, the DSO shall assess the additional needs, identify possible solutions (e.g. grid investments, market-based procurement), define an action plan and coordinate with the NRA.

In the field of balancing, market-based procurement by the TSO, as prescribed in Art. 6 of Regulation (EU) 2019/943 [5], is fully implemented in Austria. Balancing markets are open to any flexibility resources, including demand response, and rules for participation via independent aggregation are in place. Regulations of the NC DR that might necessitate amendments to the national framework include provisions on market access, such as qualification of service providers, prequalification and verification, as well as on aggregation models and rules for compensation of market actors affected by the activities of independent aggregators. These regulations are not limited to balancing markets but also applicable to prospective markets for CM and voltage control services.

References

- [1] T. Schittekatte, V. Reif, L. Meeus. “The EU electricity network codes” (2020 ed.). FSR Technical report. June 2020
- [2] ENTSO-E. DSO Entity & ENTSO-E Public consultation on Network Code for Demand Response. <https://consultations.entsoe.eu/markets/public-consultation-networkcode-demand-response/> (accessed in Nov 2023)
- [3] Nouicer, A.-M. Kehoe, J. Nysten, D. Fouquet, L. Hancher, L. Meeus. “The EU clean energy package” (ed. 2020), Technical Report Nov. 2020, Florence School of Regulation, European University Institute, 2020.
- [4] Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU
- [5] Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity
- [6] G. Kalt, S. Kaiser, A. Kabinger. „Regulatorischer Rahmen für Flexibilitätsleistungen in Verteilernetzen“, 13. Internationale Energiewirtschaftstagung an der TU Wien, Wien, 2023.