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Implementation and adjustment ahead

Enforcing, applying and revising the TCMs during
transition and crisis

Key points

- Significant efforts and observed challenges in implementing TCMs after adoption, yet revision already in action
- Opportunities and constraints with these rules and the rulemaking approach amid energy transition and energy crisis
- This research brief is based on the INC project and will be presented at the INC workshop in Florence in October 2022.



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Implementation and adjustment ahead

This Research Brief draws attention to implementation, flexibility and revision of TCMs. It examines the changes and challenges for TCMs in the years to come, in view of the energy transition and the current energy crisis.

The current document is one of four research briefs prepared for the workshop ‘Electricity rules: towards unity or diversity?’ in Florence 12–13 October 2022:

1. The evolving role of ACER: emergence, practice, and review of the TCMs
2. Electricity rulemaking in perspective: comparing the TCM procedure with other sectors
3. Stocktaking of the adopted TCMs – towards harmonization or diversity?
4. Implementation and adjustment ahead: Enforcing, applying, and revising the TCMs during transition and crisis

This is based on research conducted within the project ‘Implementing Network Codes’ (INC). Funded by the Norwegian Research Council, INC examines the EU’s energy market policy: specifically, the terms, conditions and methodologies (TCMs) that are required variously at national, regional or European level under four electricity guidelines. INC asks whether TCMs entail greater European harmonization or enable diverse regulation across countries and regions.

TCMs are detailed and binding rules that regulate a range of issues concerning electricity trade (e.g., market platforms) and the operation of electricity networks. TCMs thus concern how the existing electricity system should be managed – in contrast to regulating, e.g., the construction of new production or transmission capacity. The objective is to integrate markets and harmonize rules so as to make electricity trade more efficient.

TCMs are drafted by the transmission system operators (TSOs), and adopted by regulators. Some TCMs are (co-) drafted by Nominated Electricity Market Operators (NEMOs), which are electricity exchanges in charge of certain specific tasks. National TCMs are adopted by each national regulator. Regional and European TCMs are adopted unanimously by the national regulators in a region, or across Europe. If the latter disagree or decide to refer it, decision-making is moved to ACER.

With the Clean Energy Package, ACER became the default decision-maker for European TCMs. To adopt a TCM, ACER needs a favourable opinion from its internal Board of Regulators, where national regulators have one vote each, and where the Commission also participates (without voting rights).

1 Introduction

Significant efforts have been made to implement the TCMs in practice – work that in some cases started even prior to the formal adoption of a TCM, and may continue over the coming years. New challenges may emerge, within the process of implementing a TCM, or as part of broader changes in the sector. This gives rise to questions about flexibility within the existing TCMs, such as whether a TCM needs to be updated or can accommodate new changes. Moreover, some already-adopted TCMs face legal challenges, which could create uncertainty for practical implementation (see Research Brief 1). There are also TCMs that have already been amended, or are currently in the process of being amended. The interplay between the implementation of existing TCMs and revising them gives rise to several questions – particularly in the volatile context of energy transition and geopolitics of energy.

This Research Brief presents initial research from the INC project on what happens after TCM adoption. It discusses the implications of further implementation work that remains for the TCM that have been adopted, the flexibility of the existing TCMs, and their revision. Finally, the context in which implementation occurs is challenging, with new actors and rules emerging with the energy transition, as well as the current energy crisis. What can we expect for the future of TCMs in a volatile world? This Research Brief indicates some issues for further research in the INC project.

2 Presenting results: INC research findings

After TCM adoption follows practical implementation: formally, this is mainly carried out by the TSOs, under the supervision of NRAs and ACER (section 2.1). Here we offer some illustrations of the work to be carried out and the challenges that may emerge during implementation (2.2.). We then ask whether the rules currently in place – the adopted guidelines, and the existing TCMs in particular – are sufficiently flexible to accommodate the long-term energy transition as well as crises that may arise in the short or medium term (2.3). Finally, we indicate how several TCMs have already been revised or are in the process of revision (2.4).

2.1 Implementation and enforcement of TCMs

We first provide an overview of the division of responsibilities as regards adopting, implementing and enforcing TCMs. Figure 1 shows the formal procedure for implementing and enforcing TCMs and which institutions are responsible for each step. Hancher et al. (2021) have described the formal procedure for implementation and enforcement of TCMs. Here it should be borne in mind that a TCM may enter into force in various ways, depending on whether it has been decided by ACER or by national regulatory authorities (NRAs). In Figure 1, this is shown as the step ‘adoption at national level’, which applies only to TCMs that have been adopted by NRAs (i.e., not those adopted by ACER).

“The context in which implementation occurs is challenging”

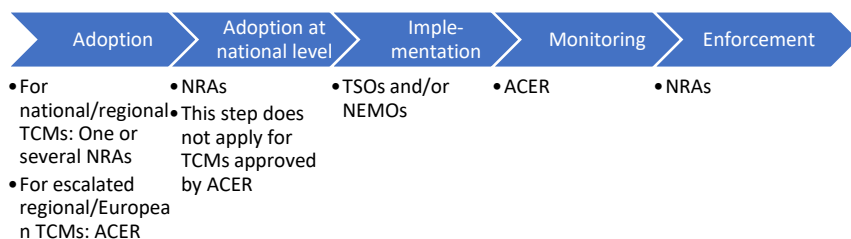


Figure 1: TCM process from adoption to enforcement. Source: INC project, based on Regulation (EC) no 714/2009; Regulation (EC) no 943/2019; Hancher et al. (2021) and ACER (2019).

The TCMs that are adopted by ACER take effect throughout the EU from the moment they are notified to their

addressees – the relevant TSOs and NEMOs (Hancher et al. 2021, p. 32). For the first generation of TCMs (adop-



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“Practical implementation hence refers to implementation of the technical rules and methodologies defined in the respective TCMs”

ted within the EU’s Third Energy Package), ACER would decide only in the case of regional or European-wide TCMs where the NRAs were not able to reach agreement. In such cases, the TCM adoption was moved upwards to ACER. The Clean Energy Package (CEP) gives ACER direct competence to decide on European TCMs instead of ‘all NRAs’ in first-generation guidelines (Hancher et al. 2021, p. 37). ACER decides on European TCMs (after the CEP) proposals by means of a formal decision directed at the addressees of the TCM (TSOs or NEMOs). That decision becomes directly applicable and effective throughout the EU, and must be published by the TSOs or NEMOs (Hancher et al. 2021, p. 45). The TSOs/NEMOs are obliged to implement the TCM within a specified timeframe stated in the final TCM.

For TCMs that have been developed by one or several NRAs (i.e., national and regional TCMs), implementation follows a two-step procedure. First, these TCMs are to be implemented in all relevant jurisdictions, through an Act under national administrative law by each of the NRAs involved in the process (Hancher et al. 2021, p. 32). Also here, the TSOs/NEMOs are obliged to implement these TCMs as soon as they are approved by the national NRA (Hancher et al. 2021, p. 45).

For a regional TCM, each NRA must then implement the transnational framework agreement within its national jurisdictions on the basis of a decision under national law. The TSOs can be held liable for non-compliance with an implemented TCM through fines or other sanctions under national law imposed by the NRA or domestic courts. Market participants seeking to challenge regional or national TCMs must do so through the appropriate procedure in the jurisdiction in question (Hancher et al. 2021, p. 46). Most TCMs must be implemented within a specified deadline after being approved. For example, for the European TCM on a common grid model under the FCA guidelines (Art. 18), the TSOs must implement the methodology within 13 months of its being approved (ENTSOE 2017, Art 18, p. 28; ACER, 2019).

In line with ACER (2019, p. 7), we differentiate between the adoption of the legal framework and the practical implementation of the measures it defines. ‘Practical implementation’ hence refers to implementation of the technical rules and methodologies defined in the respective TCM, which is generally the task of either the TSOs or NEMOs. However, some TCMs are implemented by other actors, as with the Single Allocation Platform – a European TCM under the FCA Guideline (Art. 49). The approved TCM here states that the company referred to as the Joint Allocation Office (JAO) shall operate the SAP (NRA Final Approval 2017), a function it has provided since 1 January 2019. As of 2019, the JAO conducts auctions at 77% of the borders with LITTS. Here, the JAO implements the TCM.

ACER is tasked with monitoring the implementation of network codes and guidelines, as set out in the electricity regulation in the third energy package (Regulation (EC) no 714/2009, Article 9(1), third subparagraph): the Agency ‘shall monitor and analyse the implementation of the network codes and the Guidelines adopted by the Commission [...] and their effect on the harmonisation of applicable rules aimed at facilitating market integration as well as on non-discrimination, effective competition and the efficient functioning of the market, and report to the Commission’. This task/responsibility was continued in the Clean Energy Package (Regulation (EC) no 943/2019, Article 32 (1), third subparagraph).

Concerning the monitoring task, ACER (2019, p. 62) has noted that the transparency of the process for the development of and adoption of different TCMs is insufficient. TSOs and NRAs do not consistently report ongoing actions and statuses to ACER. Due to resource limitations, ACER is not able to participate in all the regional fora where these methodologies are discussed. This makes it difficult to monitor progress with regard to their development and to identify potential problem areas sufficiently in advance.

2.2 Implementation status of selected TCMs¹

From the INC case studies, we have collected information about the status of implementation of selected TCMs. Overall, the TCMs differ considerably in nature, with the challenges in the implementation process generally associated with the type of TCM in question. A full overview is not possible at the current stage of research, but we present a few examples of practical implementation steps and challenges below.

Electricity Balancing Guideline: Balancing platforms

Several European balancing platforms were required under this guideline, including for manually, or automatically, activated frequency restoration reserves (Arts. 20[1] and 21[1]). These platforms were to be established via European TCMs that served as implementation frameworks for getting these platforms up and running. These TCMs also regulated several – but not all – aspects of how the platforms should operate, including standard products. The initial plan following from the adopted TCMs was that different countries would join the common European platforms at different times. However, some accession plans have been postponed. In 2018, the Nordic TSOs agreed to develop a regional project to prepare for joining the two above-mentioned European balancing platforms. This included phasing in more automation in balancing processes, which also involved new requirements to the providers of balancing services. However, the Nordic project took longer than initially expected, so Nordic accession to the European platforms was postponed further. The impacts of such delays have also affected the linked national TCM on specific products, which allows TSOs to use products that are different from the standard products.

Capacity Allocation and Congestion Management (CACM) Guideline:

Capacity calculation methodology

Each capacity-calculation region was required to implement a common

capacity calculation methodology under the CACM guideline (Art. 20[2]). By December 2018, 7 out of 10 regions had done so, with the remaining ones either delayed or awaiting decision by ACER (Core) (ACER, 2019, p. 50).

The Nordic version of this TCM was adopted by the NRAs at regional level, and the Core region's version become subject to a prolonged process of escalation to ACER, followed by legal contestation. Implementation in both regions has experienced significant delays, and both regions opted to move to a new 'flow-based' capacity calculation for the day-ahead and intraday timeframe. In the Core region, this would replace an existing type of flow-based approach, whereas the net-transfer-capacity (NTC) approach had previously been used in the Nordic region. The Nordic countries have experienced substantial issues with practical implementation, including testing of the new approach; and the Core region has seen major conflicts related to the making of the TCM.

Although the Nordic NRAs were able to agree on this TCM without escalation to or involvement from ACER, actual implementation was delayed by many years due to successive amendments after the initial TCM decision: more than two years after having adopted the first proposal from the TSOs, the Nordic NRAs approved a third version in October 2020.² The delays were caused because of several requests for amendments; as many as five public consultations with stakeholders were involved. The third amendment was triggered by ACER's decision on the 'sister' TCM under the FCA Guidelines (long-term capacity-calculation methodology for the Nordic region). In response, the Nordic TSOs sought to harmonize capacity calculation methodologies across timeframes by aligning the existing methodology under the CACM guideline with the one under the FCA guidelines as adopted by ACER (see section on FCA Art 10 below) (Nordic TSOs, 2020a; Nordic TSOs, 2020b).

“Implementation in both regions has experienced significant delays”

¹ This section builds on ongoing work within the INC project, including guideline-specific TCM reports.

² For agreement, see Forsyningstilsynet (2020)

“The prolonged processes of decision-making led to considerable delays in implementation”

The prolonged processes of decision-making led to considerable delays in implementation of the Nordic version of this regional TCM, indeed, it has not yet entered into operation, although the external parallel run started in March 2022 (Nordic RCC 2022). One reason for this is related to the test runs for the new CCM, where there has been a delay in IT implementation on the start of the external parallel runs (Nordic RCC, n.d.).

The Core region’s version of this TCM was adopted by ACER in February 2019. The German NRA filed a complaint with ACER’s Board of Appeal, which upheld ACER’s decision in July 2019. In response, the German NRA brought an action in September the same year before the Court of Justice of the European Union, to get the contested provisions in the decisions by ACER and the Board of Appeal of ACER (Case T-631/19) annulled. On 7 September 2022, the EU’s General Court delivered its judgement, in favour of the German NRA.³ In parallel, the German government had brought a separate action before the General Court, for annulment of several articles of Annex I-II of the ACER decision 02/2019 (Case T-283/19). That case is still pending as of this writing.

The TSOs in the Core region were to implement this TCM by December 2020, but that deadline was missed amid the ongoing legal challenges,⁴ and moved to February 2022 (Core TSOs, 2020). However, in June/July 2020, Core TSOs held consultations on amending provisions of this TCM as regards the day-ahead timeframe. Although they had not even implemented these provisions. Due to the postponement of the go-live date, ACER and Core NRAs were not pleased with the amendment, but recognized that TSOs were allowed to submit amendments at any time. The NRAs approved the amendment with minor changes in May 2021 (Core NRAs, 2021), and the Core flow-based CCM

went live on 8 June 2022.⁵ Implementation of this Core TCM had been substantially delayed – by almost two years.

Forward Allocation Capacity (FCA) Guideline: Capacity-Calculation Methodology

A regional TCM for capacity calculation for the long-term timeframe (FCA Guideline, Art 10 [1]) has been made conditional on the capacity-calculation methodology (CCM) pursuant to the CACM Guideline (the abovementioned CACM Art. 20). The FCA guideline requires that, no later than 6 months after the approval of the CACM TCM, the TSOs of each CCR must develop the FCA CCM. Since approval of CACM CCM was substantially delayed, approval of the FCA CCM had to wait accordingly. In alignment with CACM CCM, the final TCMs for Core and Nordics both involve a flow-based long-term CCM, with some differences in the details of the methodology.

Both the Nordic and the Core long-term CCMs were escalated to and decided by ACER, at two-year interval. The Nordic TCM was adopted by ACER in October 2019. Instead of proposing a redraft of the TSO proposal, ACER suggested renaming the CCM as a ‘flow-based’ methodology. According to Article 24 (2), the Nordic TSOs are to implement this methodology no later than 12 months after the CACM CCM for the Nordic CCR.

The Core TCM was decided (with the required majority by ACER) in November 2021. Implementation is due in 2025 for Core, with a flow-based yearly auction for 2025 and a flow-based monthly auction for January 2025 (Final TCM, Article 22[3]) (ACER 2021a).

The final TCM for the Nordic capacity calculation region had important implications for the CACM CCM as well. ACER’s decision on a transitional solution involving the use of ATC values in the FCA CCM led the TSOs to submit

³For judgement, see Curia.europa (2022)

⁴ Hancher and Rumpf (unpublished) highlight the lack of a suspensory effect during a legal challenge (see also Research Brief 1). Thus, implementation work might

proceed alongside legal proceedings that might change what should be implemented.

⁵ CORE-FB (2022)

an amended proposal to the NRAs on the DA/ID CCM, for harmonization across the timeframes (Nordic TSOs, 2020a; Nordic TSOs, 2020b).

System Operation Guideline: Data exchange

In its 2022 Monitoring Report on Implementation of this guideline, ACER noted instances of incomplete and insufficient implementation, and concluded that the data-exchange provisions – Arts. 40 (5), (6) and (7) – had not been implemented uniformly across the EU. More precisely, the data-exchange provisions under Art 40 (5) have been fully or partially implemented in around 70% of jurisdictions. To the extent that the TSOs have failed to determine the applicability and scope of data exchange, ACER assumed that the default rules, as prescribed by Articles 44 and 47–53, apply. Over 60% of the NRAs had reported to ACER on having accomplished implementation of KORRR (System Operation Guideline Art. 40[6]). The NRAs that had reported delays explained this by the choice of stepwise implementation.

Regarding the determination of significant grid users (SGUs) to exchange data, ACER's report showed that there were major differences in implementation, involving a wide range of parameters and thresholds in specifying the responsibility of the SGUs: the wide range of power-values (spanning from 0.25 MW to 12 MW) was seen by ACER as hampering the possibilities of creating a level playing field pursuant to the System Operation Guidelines. Concerning the provision of data exchange among TSOs, DSOs and SGUs (Article 40 (7)) – ACER holds that implementation has remained outstanding in max. 35% of the countries concerned. Monitored provisions that lay down TSOs obligations have generally been implemented (ACER, 2022a).

In its 2021 Decision for monitoring the implementation of the margins available for cross-zonal trading (MACZT), ACER noted specific problems in-

volving delayed data exchange within the Nordic capacity calculation region, stemming largely from Swedish security legislation that prohibits transparent exchange of certain electricity-system data abroad: this also delays the establishment of a Common Grid Model and potentially, the implementation of other TCMs at regional level, such as the regional operational security coordination (ROSC) – Articles 77 and 78 (ACER, 2021) (b); (Interview with Statnett, 2022).⁶

2.3 Flexibility in network codes regulation and impact on market design

As part of Work Package 2, the INC project investigates the impacts of the Guidelines and TCMs on electricity market design (Banet, forthcoming).

On flexibility and new market conditions, products and services

The first question concerns whether the current regulations around network codes, particularly guidelines and TCMs, constrain actors to a pre-defined electricity market design – or that these provide sufficient flexibility for actors to adapt to new market conditions and develop new products, technology and services, such as hedging mechanisms (innovation). The CACM and Electricity Balancing guidelines are particularly relevant for the analysis here, as well as the TCMs adopted in accordance with the guidelines. According to the CACM guidelines, a common grid model for single day-ahead and intraday coupling purposes representing the European interconnected system should be established, to enable coordinated calculation of cross-zonal capacity.⁷

The Electricity Balancing Guideline (EBGL) requires the development of harmonized methodologies for allocation of cross-zonal transmission capacity for balancing purposes.⁸ To that end, the EBGL has defined a framework for common European technical, operation and market rules for a cross-border balancing market. Harmoni-

⁶ Interview with staff at Norwegian TSO Statnett regarding implementation of the regional operational security coordination (ROSC) in the Nordic CCR (06.04.2022)

⁷ CACM preamble point 4 and 8.

⁸ EB Preamble point 5.



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“[Do] the current [rules] constrain actors to a pre-defined electricity market design...[or] provide sufficient flexibility [?]”

“It is essential to make the electricity market design suitable for dealing with renewable energy as well as price volatility”

zation of the balancing energy products is part to this process. Notably, the EBGL foresees the implementation of a European platform for the exchange of balancing energy from Replacement Reserves (RR). Several pilot projects have been developed to design such platform, and the TERRE project⁹ has been selected by TSOs to lead implementation of the Replacement Reserve-platform. One question raised is whether this platform, by harmonizing the balancing rules and thereby the market parties’ treatment, can provide sufficient flexibility to allow new products to develop and new market participants to enter the platform.

Further, the choice of model for regional dimensioning and procurement of balancing reserves under the EBGL may open the market to more balancing resources such as demand-response and renewable energy resources, through defining larger balancing zones or more frequent recalculation of balancing capacity (European Commission, 2016). A final consideration is whether the current legal framework ensures a sufficiently level playing field between technologies – or favours some of them, either deliberately or not.

A legal framework for a future-proofed market design?

The second issue concerns the extent to which the current legal framework can adapt to ensure that Guidelines and TCMs remain in line with a future-proofed market design. Here, the focus is on ‘flexibility’ in legislation and implementation: i.e., flexibility within the adapted rules, without revising them. This question must be distinguished from that of the revision of Guidelines and TCMs.

The ‘material flexibility’ of the guidelines and the TCMs refers to the technical accommodation for an electricity market design with a high share of variable energy sources, as well as the adaptation to unexpected events. The

distribution of power must be adjusted to a larger share of renewable energy to ensure security of supply, even with natural variation in production and consumption. This requires the development of the intraday and day-ahead markets, as well as the balancing markets. Intraday energy market contracts are continuously traded in the period between clearance in the day-ahead market and up to one hour before the hour of operation.¹⁰ Thus, it is essential to make the electricity market design suitable for dealing with renewable energy as well as price volatility. Unpredictable energy sources and enhanced trading in the day-ahead market necessitate well-functioning balance-markets¹¹ and common platform for the exchange of balance energy.¹²

The price-spike incidents in April in France and in August 2022 in the Baltic countries revealed a shortcoming of the current price methodologies, showing the lack of flexibility under the existing TCM. Both events would trigger an automatic increase of the harmonized maximum clearing price for Single Day-Ahead Coupling (SDAC) and Single Intraday Coupling (SIDC).¹³ Indeed, Europe’s single day-ahead electricity market has an automatic maximum (and minimum) price adjustment mechanism in case of high prices. According to the Harmonised Maximum and Minimum Clearing Price (HMMCP) methodology (Art. 41.1 CACM Regulation, a European TCM) (ACER 2017), if prices in any zone reach 60% of the maximum price, that triggers an increase in the maximum price limit five weeks later.

As price spikes seem likely to occur more frequently, there is a need to limit the frequency of increases of the maximum clearing price in the single day-ahead market, so that consumers and market participants may better adapt their behaviour. Therefore, on 2 September 2022, ACER urged a review of the rules on the automatic maximum price-adjustment mechanism in

⁹ See ENTSOE (n.d.)

¹⁰ Energifakta (2021).

¹¹ Olje- og energidepartementet (2019) *Høringsnotat om EB* s. 10.

¹² EB Preamble, point 12.

¹³ TSOs and NEMOs suspended the automatic adjustment triggered by the August 2022 spike, in response to calls from EU energy ministers. SDAC Communication note (2022)

the day-ahead electricity market (ACER, 2022b). In order to change the methodology, the NEMOs must first propose an amendment to the HMMCP methodology. Therefore, ACER will have six months to reach a decision. In the present case, ACER has indicated that it intends to complete the procedure within a much shorter framework. This makes clear some of the shortcomings of the rule-making process under the CACM Guideline, as a revision process has become necessary in order to deal with exceptional market situations. Even if the revision should be completed much faster than foreseen in the legislation, this shows a certain lack of flexibility to adapt.

Margin of discretion left to member-states to preserve national interests

The third question relates to the margin of appreciation left to the Member States to adjust to national solutions and market needs. Individual member-states may wish to promote national solutions or preserve national interests, not least for reasons of security of energy supply. But is this allowed under the currently applicable legal framework? The objective behind the rule-making approach for network codes, guidelines and TCMs was to decentralize decision-making from the EU institutions, moving it closer to the implementation level. More actors, also at the national level, are involved in rule-making – whereas, in line with the principles of subsidiarity and proportionality, a minimum of harmonized rules must preserve and promote cross-border flows on the internal market.

However, short-term needs also require flexibility and targeted responses. This is currently exemplified by the national mechanisms developed to deal with high electricity prices, possible decoupling of gas and electricity prices – derogations to the 70% rule as a result of electricity shortages at the regional level.

2.4 Revision process for TCMs¹⁴

Extensive processes of developing and adopting TCMs followed from the TCM procedure, but the latter also regulated the amendment of TCMs. The TSOs themselves (and/or the NEMOs) could propose amendments to an already adopted TCM, or NRAs – or ACER – could require the TSOs to submit an amendment (Hancher et al. 2021). Moreover, for some TCMs, revision was already specified at a given time after initial adoption. For instance, the Electricity Balancing Guideline Arts. 20(5) and 21(5) required that the two European TCMs on implementation frameworks for the balancing platforms (for manual and automatic frequency restoration reserves) be amended 18 months after their original adoption.

Several TCMs have already been changed, or are currently in the process of being amended. This includes the European TCM that defined the Capacity Calculation Regions under the CACM Guideline (Art. 15[1]: after initial adoption by ACER in 2016, it was revised by decisions made by all NRAs in 2017 and 2019, and by an ACER decision in 2021. Moreover, the related capacity-calculation methodology of the Core region, under the same guideline, was revised in 2020–2021 (see section 2.2), after having been originally adopted by ACER following a lengthy process in 2019.

Moreover, the latter revision process was launched amid legal challenges, and prior to implementation of the initial TCM (see section 2.2). This was also the case for the above-mentioned two European TCMs on balancing platforms. The legal challenges against ACER's 2020 decisions on these remain pending at the time of writing: the TSOs launched revision processes for these TCMs in 2022. The latter was, as mentioned above, required by the overarching guidelines.

Some of the initially-adopted TCMs included provisions requiring the TSOs to submit amendments on the same

“Individual member-states may wish to promote national solutions or preserve national interests, not least for reasons of security of energy supply”

¹⁴ This section builds on ongoing work within the INC project, including guideline-specific TCM reports.

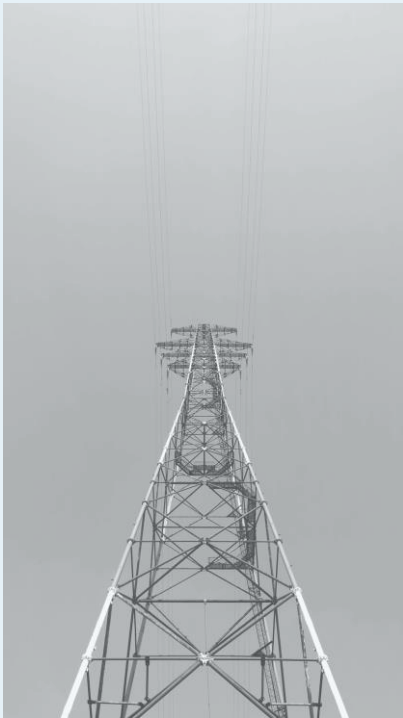


Photo: Unsplash

“The interplay between practical implementation and revision of existing TCMs occurs amid a broader energy transition as well as the current energy crisis”

TCM. This was the case regarding the methodology for coordinating operational security analysis (CSAM), a European TCM under the System Operation Guideline. In its decision adopting this TCM, ACER requested the TSOs to come back, within a set period, with amendments on specific issues that were to be regulated by the TCM (*inter alia*, how remedial actions would be included in individual grid models, and more detailed rules for coordination across each Regional Security Coordinator). The NRAs had raised these difficult issues previously; and, rather than deciding by itself, ACER pressed the TSOs to develop common rules for this.

In at least one case, a changing situation led to a change of a TCM. Originally, Sweden and Finland had opted for derogation from issuing long-term transmission rights under the FCA Guideline, based on an assessment approved by the national regulator in each country that there was sufficient liquidity available without the TSO issuing such transmission rights. However, Finland later did an about-face and opted for long-term transmission rights on its bidding-zone border with Estonia. As a result, the European TCM on the single allocation platform for the trade of long-term transmission rights was revised, and an amendment decision was adopted by ACER to accommodate Finnish participation (ACER, 2022c).

In sum, TCM revision has occurred for various reasons – as regulated in the guideline itself, as required by the decision adopting the initial TCM, or in response to a changing situation – and at times alongside ongoing legal challenges to the initial TCM decision.

3 Setting the stage for the Florence workshop: Unanswered questions and emerging issues

Here we draw attention to issues and questions emerging from research and developments in the sector that could be discussed at the INC workshop in Florence. The interplay between prac-

tical implementation and revision of existing TCMs occurs amid a broader energy transition as well as the current energy crisis, and gives rise to several questions.

First, what experiences and lessons have emerged concerning practical implementation of the TCMs thus far? How much leeway is there for the TSOs and others regarding their practical implementation of a TCM? To what extent have legal challenges, or anticipations of TCM revision, affected practical implementation? Has this shaped monitoring by ACER, or enforcement by the NRAs?

Second, moving ahead, TCMs could emerge for new issues. ACER is currently developing framework guidelines for demand response. If this is followed by guidelines rather than network codes,¹⁵ it might entail the introduction of a TCM procedure where distribution-system operators as well as new and emerging players in the electricity sector might be involved. The participation of such actors has been very limited for the existing TCMs: but these mainly concern the transmission level and wholesale markets. In contrast, potential guidelines on demand response would to a greater extent affect actors at the level of local distribution, including new entrants and emerging players. Will they participate in issues of direct relevance to them (e.g., distributed production, demand response etc.) were to become regulated via guidelines and TCMs?

Third, looking ahead, are the existing TCMs and the TCM approach suited for the future? On the one hand, the TCMs (and their ‘parent’ guidelines) can be seen as ‘living documents’ involving iterative rounds of revision in light of experience gained over time. This entails some time-lag, as the development and adoption – potentially also the resultant legal challenges – may take years to complete, whereas lower speeds could allow time for developing suitable solutions. On the other hand, the TCMs reflect market-design rules for a market under constant evolution, and, not least, one

¹⁵ See, e.g., ACER (2022d)

subject to innovation. TCMs regulate issues in a volatile world of energy transition and energy geopolitics. To what extent are the current TCMs sufficiently flexible to accommodate gradual or abrupt changes? While too much flexibility could present challenges of its own, too little flexibility could trigger frequent TCM revision or other types of intervention in the market. Also, is it advantageous for national actors that electricity regulation is bound by European law in these troubled times? Further, is the rule-making approach – the creation and adoption of TCMs – well-suited for the future? The unfolding energy crisis and the responses by the EU Commission and the member-states may require rapid changes to many TCMs. Should situations requiring immediate action be addressed by means of TCM revision? if so, how to address the trade-off between a thorough and an expedient revision?

Finally, a new crisis might trigger broader political interventions. What would be the consequences of political interventions for the TCMs and TCM rulemaking? What would be the implications for the existing regulatory regime if a new discussion of electricity market design should re-emerge in the wake of the ongoing energy crisis? To what extent and how might structural reforms trickle down, shaping network codes, guidelines and TCMs?

4 Conclusions and recommendations

This Research Brief has discussed implementation of the TCMs – including the work that remains after a TCM has been adopted, the flexibility of rules in light of structural changes within the sector, and the subsequent revision of the TCMs themselves. The next phase of the INC project will focus on the implementation and future development of the TCMs.

As regards implementation and enforcement on paper and in practice, we note considerable differences in how readily the various TCMs can be implemented. Less complicated and uncontested TCMs can be adopted and implemented smoothly. For some

TCMs, however, considerable delay in implementation can be a consequence of difficulties in agreeing on, adopting, and approving the TCM (example: CACM Art 20 for the Core CCR). For others, delays may be due to technically complex issues (example: CACM Art 20 for the Nordic CCR), or interdependencies with other TCMs (as with FCA Art 10), due to delays with implementation of other related TCMs.

As regards the flexibility of the existing guidelines and TCMs, our conclusions are mixed. On the one hand, market rules aim to promote a level playing field for actors in proposing new products and services, in line with market developments and innovation. However, exceptional market situations (resulting in e.g., high prices and the need to preserve security of supply and consumers) have revealed the shortcomings of the rules – triggering a review of the guidelines, instead of providing for sufficient flexibility under existing rules.

Finally, several TCMs have been or are being revised, amid ongoing practical implementation, legal challenges or a changing context. This heightens the need for coordination between practical implementation and revision processes, also across TCMs that may be closely interlinked. Such coordination will be particularly challenging if revision must be carried out rapidly – for instance, if necessary in a situation like that posed by the current energy crisis.

“Need for coordination between practical implementation and revision processes”

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**Implementation and adjustment ahead:
Enforcing, applying and revising the
TCMs during transition and crisis**

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and Catherine Banet*

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The INC project

The research project 'Implementing Network Codes' examines EU electricity market regulation from political, legal and economic perspectives, in collaboration with stakeholders. It is led by the Fridtjof Nansen Institute in Norway. Participating research institutions are the Florence School of Regulation, the Scandinavian Institute of Maritime Law (University of Oslo), Osnabruck University, University of Göttingen, Thema Consulting Group and DNV. INC is funded by the Research Council of Norway as a collaborative research project (2020-2024; grant agreement no. 308855), with co-funding from, Energy Norway, Statkraft, Statnett, the Norwegian Ministry for Petroleum and Energy, Elvia, Hafslund E-CO Vannkraft, Skagerak Kraft and Nord Pool.

Read more at fni.no/INC

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