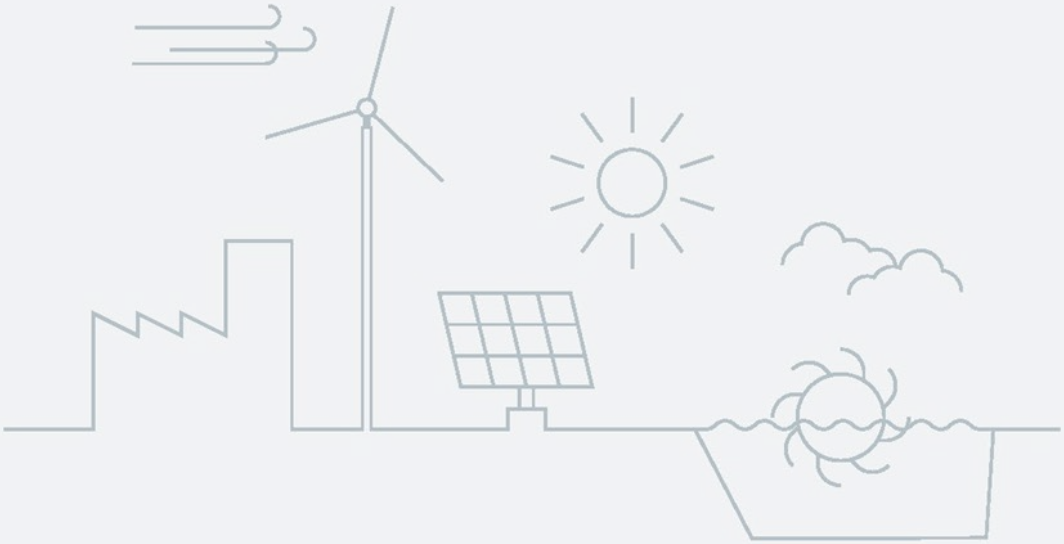
NordREG
Nordic Energy Regulators
POWER THROUGH COOPERATION

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Oversight of Nordic RCC 2025

Table of contents

1 Introduction 4
1.1 Nordic RCC 4
1.2 Annual Oversight 2025 5
2 Information from Annual oversight 2025 7
2.1 External Consultants 7
2.2 IT development strategy 9
2.3 Status and quality of Nordic RCCs task implementation 11
3 Conclusions & recommendations 17

ABBREVIATIONS

ACER	Agency for the Cooperation of Energy Regulators
BT	Balancing Timeframe
CGM	Common Grid Model
DA	Day-Ahead timeframe
D-2	Two days ahead
ENTSO-E	European Network of Transmission System Operators for Electricity
FB	Flow-Based capacity calculation
ID	Intraday timeframe
IVA	Individual Validation Adjustment
LTFBA	Long-Term Flow-Based Allocation
M-1	Month-ahead timeframe
MTU	Market Time Unit
NEMO	Nominated Electricity Market Operator
NordREG	Nordic Energy Regulators
OPI	Outage planning coordination
PRA	Probabilistic Risk Assessment
RAO	Remedial Actions Optimization
RCC	Regional Coordination Centre
RIAR	Regional Incident Analysis and Reporting
RSA	Regional Security Analysis
STA	Short Term Adequacy
SOR	System Operation Region
TSO	Transmission System Operator
Y-1	Year-ahead timeframe

1 Introduction

The NordREG NRCC task force conducts annual oversight of the Nordic Regional Coordination Centre (Nordic RCC) on behalf of the Nordic Regulators. Following Article 37 of the Electricity Regulation, the task force reviews the RCC's tasks each year, focusing on selected topics, and compiles a report with findings, insights, and conclusions.

1.1 Nordic RCC

Nordic RCC is an independent company jointly owned by the four electricity Transmission System Operators (TSOs) in the Nordic region (Energinet, Statnett, Svenska kraftnät and Fingrid). The purpose of the Nordic RCC's is to ensure the operational security and reliability of the Nordic power systems by coordinating activities between the TSOs in Denmark, Norway, Sweden and Finland.

The responsibilities of Regional Coordination Centers are defined in Article 37 in Regulation (EU) 2019/943 (Electricity Regulation), an overview of the tasks is provided in Table 1. Nordic RCC is also responsible for some additional tasks, not required by the regulation, but requested by the Nordic TSOs. For more details regarding the tasks, see the Nordic RCC Annual Report[1].

Table 1 RCC Task overview

37.1	Tasks
a	Coordinated Capacity Calculation
b	Coordinated Security Analysis
c	Common Grid Model
d	Defense and Restoration Plans
e	Short Term Adequacy

[1] Nordic RCC Annual Report 2024

f	**Outage Planning Coordination**
g	**Training and Certification**
h	**Support Restoration**
I	**Regional Incident Analysis and Reporting**
J	**Regional Sizing**
k	**Regional Procurement Support**
l	**Inter-TSO Settlements**
m	**Crisis Scenarios**
n	**Seasonal Adequacy**
o	**Maximum Entry Capacity**
p	**Identification of System Needs**

1.2 Annual Oversight 2025

The NordREG NRCC task force is responsible for conducting an annual oversight of the Nordic RCC. The scope of each review is defined by the task force, focusing on topics selected based on past evaluations and strategic areas of interest. Presented below is an overview of the supervisory process, along with the oversight topics of 2025.

- Information of the Oversight topics: On September 10th, NordREG NRCC task force informed Nordic RCC of the selected topics for this year's annual oversight and submitted a set of questions to support the review process.
- Oversight meeting: On October 6th, NordREG NRCC task force visited the Nordic RCC in their office in Copenhagen. Nordic RCC presented information regarding the oversight topics.
- Written response: On October 10th, Nordic RCC submitted the written response of the annual oversight to NordREG NRCC task force.

Oversight topics 2025

1. Topics Related to the Use of External Consultants

- Evaluation of the balance between permanent staff and consultants
- Plan and progress in the strategy to insource specialist competencies
- Cost analysis of consultants versus permanent staff
  Status on the opening and filling of new positions as an alternative to consultants

2. Topics Related to IT Development Strategy

- Evaluation of the strategy for IT-applications: in-house development vs. third-party development
- General risk considerations
- Investment in internal IT-competencies
- Evaluation of the Norcap project

3. Status and quality of Nordic RCC's task implementation

- Investigation of the extent to which the Nordic RCC has implemented mandatory tasks
- Quality assurance of processes and methods
- Documentation of coordination with TSOs
- Presentation and status updated of Nordic RCCs tasks.

4. Cybersecurity

An additional topic that NordREG NRCC task force requested information about was cybersecurity. The Nordic RCC has informed NordREG NRCC task force regarding their cybersecurity work. As the Danish Energy Agency is responsible for oversight of cybersecurity within the Danish TSO (Energinet), this topic has not been included further in this report.

2 Information from Annual oversight 2025

2.1 External Consultants

BACKGROUND

According to article 35 in the Electricity Regulation the RCC should have the organisational, financial and operational arrangements necessary to ensure the efficient, secure and reliable operation of the interconnected transmission system. The oversight topic on external consultants stems from NordREG's 2024 identification of their extensive use as an area needing further review[2]. The oversight topics related to the use of external consultants is following:

- Evaluation of the balance between permanent staff and consultants
- Plan and progress in the strategy to insource specialist competencies
- Cost analysis of consultants versus permanent staff
- Status on the opening and filling of new positions as an alternative to consultants

Key Insights from Oversight Review

To provide an overview of the balance between permanent staff and consultants, the following table presents the Nordic RCC consult ratio including historical data and estimates for the coming years

Table 2 Consult ratio

Year	End of 2022	End of 2023	End of 2024	End of 2025 (estimate)	End of 2026 (estimate)
Consultant ratio	38%	33%	32%	30%	26%
Consultant ratio (excl regional projects)			30%	24%	20%

[2] Annual oversight report of NRCC 2024

The Nordic RCC informed NordREG NRCC task force that the current use of consultants is in line with Nordic RCC's strategic choices, including their sourcing strategy. The main usage of consultants is for IT-development, but also for Regional Projects and temporary assistance to the TSOs (e.g. for short-term projects or temporary assistance for a specialist expertise).

The Nordic RCC informed that they have managed to decrease the consultant ratio and at the same time maintaining operations, continued development, and onboard a significant number of employees each year.

The current strategic decisions for the use of consultants are also focusing on the value of flexibility and the ability to scale up and down quickly ensuring the timely implementation of the tasks. The Nordic RCC describes that they have largely been successful in insourcing relevant roles (to be replaced consultants).

The Nordic RCC has informed NordREG NRCC task force that the general consultation rates are higher than cost of internal employees. In addition, it was informed that due to agreements, the Nordic RCC have been able to secure lower rates than the average. The current strategic decisions for the use of consultants are focused on the value of flexibility and the ability to scale up and down quickly to ensure timely implementation of tasks.

REFLECTION OF KEY FINDINGS

NordREG finds the decreasing number of consultants as a positive development given that permanent employees are important for securing the Nordic RCCs operational arrangements. The estimated decreasing consultants ratio for year 2026 seem like an promising development in this regard.

The approach regarding strategy and cost of consultants is considered reasonable for now, given the importance of securing appropriate competencies during the initial phase of IT-development, task implementation and short-term projects. The rate of external consultants should be followed up on and reviewed again in a couple of years, when Nordic RCC has reached a more mature operational state.

2.2 IT development strategy

BACKGROUND

The background to the oversight topic regarding IT-development strategy was based on previous year oversight[3]. During that process, NordREG NRCC task force identified that Nordic RCC is dependent on third party for developing their IT tools. NordREG concluded that the Nordic RCC should provide an evaluation of the current strategy on new IT-applications focusing on the pros and cons of the Nordic RCC being less dependent on third-party developers. The following are IT development strategy oversight topics:

- Evaluation of the strategy for IT applications: in-house development vs. third-party development
- General risk considerations
- Investment in internal IT competencies
- Evaluation of the NorCap project

Key Insights from Oversight Review

Nordic RCC has communicated to NordREG NRCC task force that it follows an IT sourcing strategy, guiding the Nordic RCC regarding whether to use in-house IT development resources or third-party resources. Furthermore, the strategy has been approved by their Board of Directors.

Key IT sourcing principles include:

- In-house sourcing for strategic and service-critical capabilities
- Third party sourcing for standard and specialized capabilities. Framework agreements are in place for these services.

Current and future decisions on in-house development (Build) vs third-party development (Buy) are also based on the Nordic RCC Sourcing Strategy and on Nordic RCC Enterprise Architecture (EA) Strategy. These strategies are collectively used to ensure that application choices aligns with their target architecture, sourcing principles, and regulatory obligations.

[3] Annual oversight report of NRCC 2024

NorCap

NorCap is an IT-application used both to create the Common Grid Model for the Nordic electricity grid and to calculate capacities in the Flow-based methodology. The Nordic RCC is currently evaluating the NorCap IT application. See chapter 2.3 for more details regarding implementation of capacity calculation and common grid models.

REFLECTION ON THE FINDINGS

Nordic RCC presented their IT-development Strategy in detail at the oversight meeting. NordREG appreciates that the Nordic RCC is prioritizing a review of the NorCap IT application, given NorCap's significant role in the Nordic electricity market coupling. NordREG will monitor the progress of the NorCap application due to its significance for the tasks and services offered by the Nordic RCC.

2.3 Status and quality of Nordic RCCs task implementation

BACKGROUND

To follow up the development over time and the fulfilment of implementation of RCC tasks according to the Electricity Regulation, implementation is selected as an oversight topic. The oversight questions were as follows:

- Investigation of the extent to which the Nordic RCC has implemented mandatory tasks
- Quality assurance of processes and methods
- Documentation of coordination with TSO
- Presentation and status update of Nordic RCCs tasks.

Key Insights from Oversight Review

Table 3 below summarizes the Nordic RCC implementation status of their tasks.

Table 3 Nordic RCC implementation status

37.1	Tasks	Status
a	Capacity Calculation	Partially implemented
b	Security Analysis	Partially implemented
c	Common Grid Model	Partially implemented
d	Defence and Restoration Plans	Implemented
e	Short Term Adequacy	Implemented
f	Outage Planning Coordination	Partially implemented
g	Training and Certification	Implemented
h	Support Restoration	No methodology
I	Regional Incident Analysis and Reporting	Implemented
J	Regional Sizing	Under development

k	**Regional Procurement Support**	**Under development**
l	**Inter-TSO Settlements**	**Not requested**
m	**Crisis Scenarios**	**Implemented**
n	**Seasonal Adequacy**	**Not requested**
o	**Maximum Entry Capacity**	**Not requested**
p	**Identification of System Needs**	**No methodology**

Coordination with TSO process and quality

During the oversight meeting, Nordic RCC informed NordREG NRCC task force of the annual and long-term planning process between the RCC and the TSOs. The Nordic TSOs are consulted on the draft planning for the next years and provides their feedback. The Nordic RCC Board of Directors approve the RCC budget for the next year.

The Nordic RCC informed NordREG NRCC task force that the implementation of RCC tasks cannot be done isolated by the Nordic RCC, for almost every task have a high dependency on:

- TSO data input
- Data/communication integrations with all TSO systems,
- Testing
- Operational readiness of all participating parts (can for example be NEMOs)

Status update

Table 4 summarizes the status of Nordic RCC tasks based on information from the Nordic RCC.

Table 4 Nordic RCC tasks Status

37.1	Tasks	Status
A	Capacity Calculation	DA & Y-1 operational ID FB project ongoing. FB IDA (auctions) planned go-live late 2027 M-1 planned go-live April 2026 Y-1 LTFBA planned go-live Oktober 2026 BT no timeline
B	Security Analysis	DA RSA in operation ID planned go-live mid 2027.* RAO scooping phase started Cross–regional coordination: business prosses not yet defined at EU level. PRA methodology under development until 2027
C	Common Grid Model	D-2, DA, Y-1 in Operation. ID tool is ready & M-1 tool implementation done.
D	Defence and Restoration Plans	Implemented, will be done every fifth year.
E	Short Term Adequacy	Regional & Pan European STA calculation is implemented
F	Outage Planning Coordination	Regional & Pan-European operational OPI assessment & Relevant asset coordination on hold
G	Training and Certification	Training Program implemented
H	Support Restoration	Methodology in development in ENTSO-E Project Team
I	Regional Incident Analysis and Reporting	RIAR implemented
J	Regional Sizing	Subtask 1 (yearly min reserve capacity) expected to be implemented Q3 2026 Subtask 2 (daily reserve check) - late scooping stage and not prioritized
K	Regional Procurement Support	Late scoping stage due to TSO prioritization
L	Inter-TSO Settlements	This task has not been requested by Nordic TSOs
M	Crisis Scenarios	Implemented, will be done every fourth year.
N	Seasonal Adequacy	Not delegated to RCCs
O	Maximum Entry Capacity	Nordic RCC stands ready as soon as a national Capacity Mechanism is implemented. Tool is available via ENTSO-E
P	Identification of System Needs	ENTSO-E has not submitted a methodology to ACER yet

*Nordic RCC has informed NordREG NRCC task force that the implementation planning for the ID RSA has been revised since the October 2025 oversight

meeting. The updated expected timeline is now mid-2027. This revised planning is aligned with the information provided in relation to ROSC implementation.

REFLECTION ON THE FINDINGS

The table below provides a summary of the development status of Nordic RCC's tasks, organized by main category

Table 5 Nordic RCC development status

Status	# of tasks
Implemented / In Operation	5
Partially implemented	4
Under development	2
No methodology	2
Not requested	3

Table 5 illustrates a summary of the development status made in the implementation of the Nordic RCC's tasks. The Nordic RCC has fully implemented five of their tasks. Additionally, some of the tasks are marked "Partially implemented". This category includes several substantial sub-tasks that have also been completed. Below is more details and reflections of the tasks in the different categories.

Implemented

The Nordic RCC has fully implemented the tasks Defence and Restoration Plans, Short-Term Adequacy Assessments, Training and Certification Programs, as well as Regional Incident Analysis and Reporting and Crisis Scenarios.

Under development

The tasks regional sizing & procurement is "*under development*". The Nordic RCC informed that the task regional procurement has a late scoping stage due to TSO prioritization. In the oversight meeting with the Nordic RCC it was decided that this task will be followed up by an additional meeting, to look more closely into to the problems concerned.

No methodology

The tasks *support restoration* and *identification of system needs is waiting for a methodology's to be developed by ENTSO-E and approved by ACER. For the task identification of system needs ENTSO-E has not submitted a methodology to ACER yet.* For the tasks *support restoration* the methodology is in development in ENTSO-E Project Team. NordREG NRCC task force has been informed about current discussions regarding the alignment on expectations of the technical requirements for the task support restoration, and NordREG NRCC task force will continue have a dialog with the Nordic RCC regarding these topics.

Not requested

The Nordic RCC tasks "inter-TSO settlement" and "seasonal adequacy" has not been requested by the Nordic TSOs and according to Article 37(1) in Regulation (EU) 2019/943 (Electricity Regulation). These tasks are part of RCC responsibilities if they have been requested or delegated to them. The task "Maximum entry capacity" has not been requested by the Nordic TSOs yet, but the Nordic RCC stands ready to perform this task as soon as national Capacity Mechanisms are implemented.

Partially implemented

Common grid models for the Two Day-Ahead, Day-Ahead, and Year-Ahead time horizons are in operation. While for the Intraday common grid model the tool has been developed and is ready for implementation at the Nordic RCC, the implementation is expected in Q2 2026 as part of the RSA project. The tool for the Month-Ahead common grid model is also complete and the implementation is scheduled for Q1 2026.

During the recent oversight meeting, the development of a Common Grid Model for Observed State (OS) was discussed. This model has been requested by the Nordic TSOs, and NordREG acknowledges the importance and value of its development.

During 2025, an ad-hoc oversight has been done regarding the Common grid model as part of a common coordinated European overview, and in next year to follow up on the implementation that is planned for 2026.

Capacity calculation for the Day-Ahead timeframe was implemented in October 2024, followed by the Year-Ahead process went live in October 2025. As the

Year-Ahead implementation is now in place, NordREG finds it valuable to follow up on its rollout as well as the quality of the Day-Ahead timeframe.

The Month-Ahead capacity calculation has experienced delays, with the go-live now expected in April 2026. NordREG finds this to be an priority due to its significant impact of planning and coordination. The Year-Ahead LTFBA, aligned with the European timeframe, is scheduled to go live in October 2026. For Flow based on the Intraday timeframe, the project is ongoing. The Intraday auctions is planned to be implemented late 2027. The Balancing timeframe currently has no confirmed timeline. During the recent oversight meeting, it was agreed that a dedicated session will be arranged between the Nordic RCC and NordREG NRCC task force to further explore the Individual Validation Adjustment (IVA), which the Nordic RCC reports quarterly to NordREG.

Regional and Pan-European outage planning coordination is operational with continuous improvements. OPI assessment and Relevant assets have been deprioritized by the TSOs.

Security Analysis for Day-Ahead RSA is operational, while the Intraday RSA is planned for Q2 2026. The remedial action optimization RAO, is in a scooping phase for now, NordREG find this topic of particular interest to look further into and to be an priority for 2026.

3 Conclusions & recommendations

NordREG finds, that all oversight questions were addressed, and during the oversight meeting held at the Nordic RCC on October 6th 2025, The Nordic RCC provided detailed explanations to the oversight questions.

Our monitoring has identified that follow up on the RCC tasks related to capacity calculation and security analysis are topics of particular interest for further examination for the oversight 2026. In particular NordREG NRCC task force will further examine flow based for Month-Ahead alongside with the quality of the Day-Ahead timeframe. NordREG will focus on security analyses and the developing of the RAO.

The Nordic RCC, established in 2022, is currently in the implementation phase of mandated tasks. Five tasks have been fully implemented, and efforts are ongoing to complete the remaining mandatory activities. NordREG finds that the Nordic RCCs operational arrangements regarding the use of external consultants will be followed up and reviewed again, once the Nordic RCC has reached a more stable phase following the implementation of its tasks.

NordREG finds it valuable that the Nordic RCC is focusing on reviewing the NorCap IT-application, because of NorCap´s central role in the Nordic electricity market. NordREG will follow the development of NorCap and its role for the tasks and services provided by the Nordic RCC.

Nordic RCC has informed that some of their tasks are planned to be implemented in 2026. NordREG will conduct a follow-up review on a later stage regarding the tasks that have been implemented and tasks under development.

Appendix

Previous Annual Oversight of Nordic RCC

Year	Oversight topics
2023	- **Nordic RCC annual report**
2024	- **Cost & Resources** - **Flow based & Common Grid models**