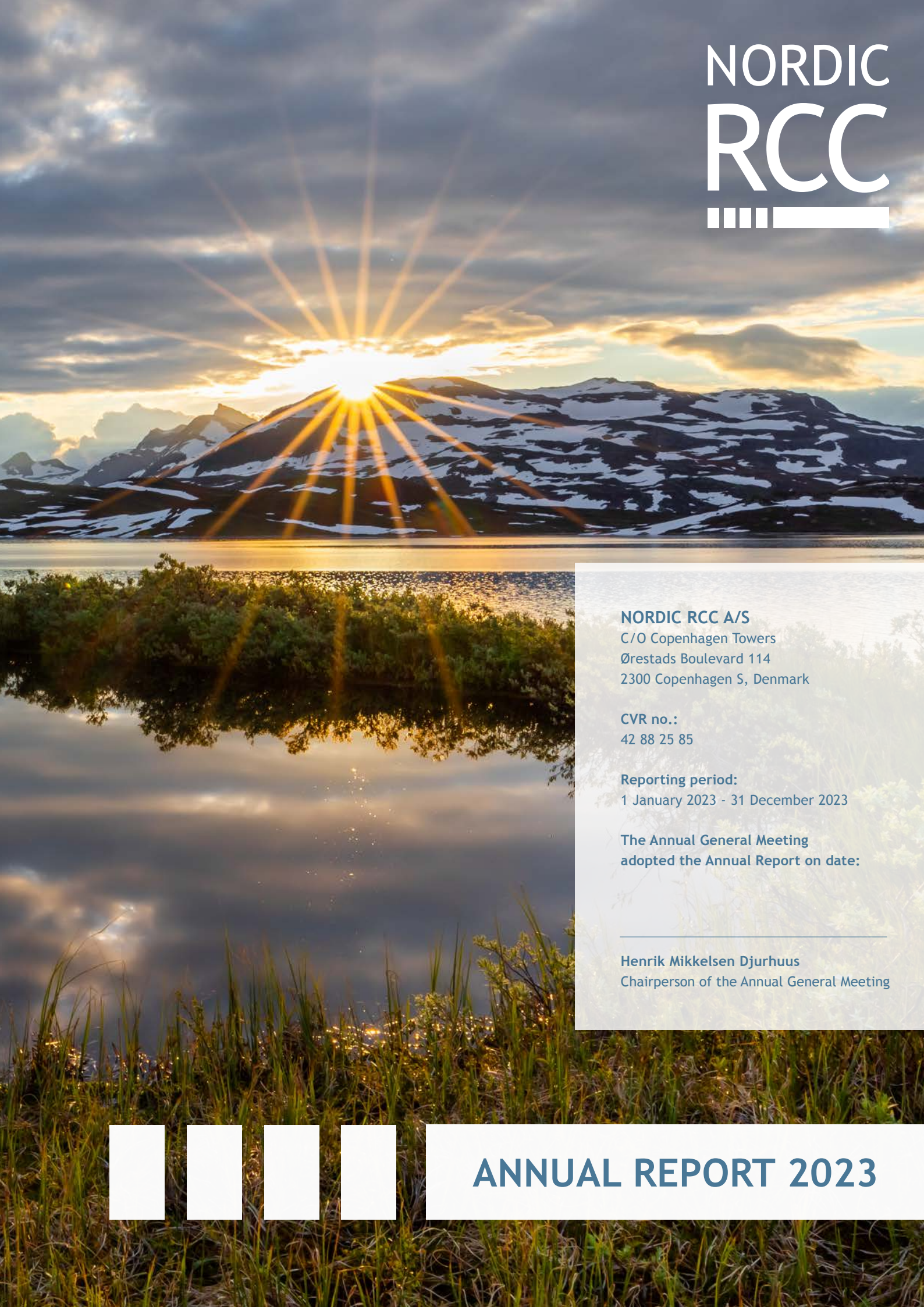


NORDIC RCC

NORDIC RCC A/S
C/O Copenhagen Towers
Ørestads Boulevard 114
2300 Copenhagen S, Denmark

CVR no.:
42 88 25 85

Reporting period:
1 January 2023 - 31 December 2023

The Annual General Meeting adopted the Annual Report on date:

Henrik Mikkelsen Djurhuus
Chairperson of the Annual General Meeting

ANNUAL REPORT 2023

HIGHLIGHTED CONTENT

VISION

Bridging Nordic power systems to enable the green energy transition

MISSION

We provide critical Nordic and European services and insights to Transmission System Operators for the benefit of society.

Through collaboration, we proactively enable Transmission System Operators to optimise beyond their individual capabilities.

We digitalise to increase security, efficiency, and transparency of Nordic power systems.

PHOTOS
Henrik Strømstad:
Cover, p: 8, p: 44, p:96

Nicolai Franzen:
the remaining photographs

DESIGN
Polygraphic

INTRODUCTION

It is a great pleasure to present you with the Nordic RCC Annual Report 2023.

The report is divided into three sections:

MANAGEMENT REVIEW
NORDIC RCC TASK MONITORING
FINANCIAL STATEMENTS

In the **MANAGEMENT REVIEW**, you can read about Nordic RCC as a company, get an understanding of the tasks we provide and get an overview of our activities during the year, hear from our CEO and Chairperson, and learn about our new strategy.

NORDIC RCC TASK MONITORING elaborates on the tasks we perform and implement, and report on the outcome of our monitoring obligation fulfilling the requirements of Article 46 of the EU regulation 2019/943 on the internal market for electricity.

In the **FINANCIAL STATEMENTS**, you can learn about our financial development over the past year, the reporting of which fulfils the requirement of the International Financial Reporting Standards (IFRS).

The reporting period for the report is 1 January 2023 to 31 December 2023. The previous period, which is used for comparison, covered from the incorporation on 6 December 2021 to 31 December 2022. However, the majority of activities started on 1 July 2022, where activities and employees were transferred to Nordic RCC. Nordic RCC's first reporting period was therefore extraordinary as the actual period covered more than 12 months, the majority of activities covered only 6 months, and the period included costs for establishment.

We wish you a good read and hope you will enjoy the report.

WHAT DO WE MEAN WHEN WE SAY… TASKS AND SERVICES?

When used in this report, tasks and services refer to the same thing: what we deliver to the TSOs. The term 'tasks' originates from regulation and refers to our regulated obligation. The term'services' has historically been used to emphasise that what we do need to be valuable for our customers and market operators. In reality, this is the same thing (TASKS = SERVICES), as we must deliver the regulated tasks in a way that is valuable.

In this report, we mainly talk about RCC tasks, but also about services, when this is a better fit.

COMPANY DETAILS

NORDIC RCC A/S
C/O Copenhagen Towers
Ørestads Boulevard 114
2300 Copenhagen S, Denmark

Business Registration No.:
42 88 25 85

Registered office:
Copenhagen

Date of incorporation:
6 December 2021

Reporting period:
1 January 2023 - 31 December 2023

Board of Directors:
Marina Louhija, Chairperson
Kristin Lucie Munthe
Lars Erik Ek
Nicolaj Nørgaard Peulicke

Executive Board:
John Henrik Kofod, CEO

Auditors:
EY Godkendt Revisionspartnerselskab
Dirch Passers Allé 36
2000 Frederiksberg, Denmark

ABBREVIATIONS LIST

15' MTU	15-minute Market Time Unit (project)
AAA	Adequacy Assessment Agent
AC	Alternating Current
ACER	Agency for the Cooperation of Energy Regulators
ATC	Available Transmission Capacity
BZ	Bidding Zone
CACM	Capacity Allocation and Congestion Management (guideline)
CAPEX	Capital Expenditures
CCC	Coordinated Capacity Calculation
CCM	Capacity Calculation Methodology
CCR	Capacity Calculation Region
CGM	Common Grid Model
CGMA	Common Grid Model Alignment
CGMES	Common Grid Model Exchange Standard
CGS	Critical Grid Situation
CM	Capacity Mechanism
CSA	Coordinated Security Analysis
DOPT	Daily Operational Planning Teleconference
ECG	Electricity Coordination Group
EDD	Energy Delivery Day
ENTSO-E	European Network of Transmission System Operators for Electricity
ERAA	European Resource Adequacy Assessment
ERM	Enterprise Risk Management
FB	Flow-based
FB Imp	Flow-based Implementation (project)
FRR	Frequency Restoration Reserves
HVDC	High Voltage Direct Current
ICS	Incident Classification Scale
IFRS	International Financial Reporting Standards
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IGM	Individual Grid Model
ISA	International Standards on Auditing
ISO	International Organization for Standardization
KPI	Key Performance Indicator
LFC	Load Frequency Control
LHF	Last Hour Flow
LTCC	Long-Term Capacity Calculation
MEC	Maximum Entry Capacity
MS	Member State
MTU	Market Time Unit
MVS SP	Minimum Viable Solution Security Plan
NBM	Nordic Balancing Model (project)
NEMO	Nominated Electricity Market Operator
NOA	Nordic Overview of Adequacy
NOIS	Nordic Operational Information System
NRA	National Regulatory Authority
NROSC	Nordic Regional Operational Security Coordination
NRVF	Nordic Region Verification Function
NTC	Net Transfer Capacity
NTT	Nordic Training Team
OPC	Outage Planning Coordination
OPDE	Operational Planning Data Environment
OPEX	Operating Expenditures
PE	Pan-European
PEVF	Pan-European Verification Function
RAA	Regional Adequacy Assessment
RAO	Remedial Action Optimisation
RCC	Regional Coordination Centre
RIAR	Regional Incident Analysis and Reporting
ROSC	Regional Operational Security Coordination
RSC	Regional Security Coordinator
RWT	RCC Working Table
SDAC	Single Day-Ahead Coupling
SEW	Socio-economic welfare
SIPS	System Integrity Protection Schemes
SOR	System Operation Region
STA	Short-Term Adequacy
TSO	Transmission System Operator
UAP	Unavailability Plan
VDV	Visual Domain Validation
XBID	Cross-Border Intraday

TIMEFRAMES

OS H-0	Observed State
ID	Intraday
D-1 DA	Day-ahead
D-2	Two days ahead
D-7	Seven days ahead
W-1	Week-ahead
W-4	Four weeks ahead
M-1	Month-ahead
Y-1	Year-ahead
Y-5	Five years ahead

MANAGEMENT REVIEW

CONTENT

JOINT LETTER FROM THE CEO AND THE CHAIRPERSON

Dear partner, customer and employee

With the end of 2023, we marked the first full calendar year in operation in Nordic RCC. That is one full year of providing valuable tasks to the Nordic Transmission System Operators (TSOs), one full year of developing services and applications, and one full year of strengthening the foundation of the company. One year of working towards the green energy transition.

A defining year with focus on preparing for the future

2023 has been a year with focus on preparing for the future, both in relation to our organisation and the tasks we are to provide; a year where we have strengthened the foundation. When we look back at the activities in Nordic RCC during 2023, a few stands out in memory.

Together with the Nordic TSOs, Nordic RCC increased the focus on the External Parallel Run (EPR) for the flow-based methodology for day-ahead Coordinated Capacity Calculation (CCC). With that focus, we succeeded in reaching the required 3 months in accordance with the criteria set by the National Regulatory Authorities (NRAs). This got us one step closer to the go-live of the flow-based methodology, for the benefit of society in both the Nordic and European region.

2023 was also the year, we defined a 3-year strategy for the entire organisation, gathering everyone in a common direction with an ambitious vision and prioritised activities to get us there. For Nordic RCC to deliver as required, we need a modernised and updated IT infrastructure, which we also succeeded in building together with our infrastructure partners: In November 2023, we celebrated the migration of our new future-ready IT infrastructure.

Travelling back to the beginning of the year, Nordic RCC made the decision to take the prototype of the service Coordinated Security Analysis (CSA) out of production. At that point, it had provided the necessary insights and learnings to further develop the service with improved value. These lessons learned contributed to the definition of clear go-live criteria of the service, which is now expected to enter operation in 2024.

In July 2023, the EU Agency for the Cooperation of Energy Regulators (ACER) approved two methodologies for the Regional Coordination Centres (RCCs), relating to regional sizing and facilitating the procurement of electricity balancing capacity. With these methodologies approved, Nordic RCC has started investigating how to develop and implement the related tasks in the Nordic region.

Organisationally, we have continued to ensure in-house capabilities by converting external consultants to internal employees, we have defined roles and responsibilities for the entire organisation, and we have formalised processes such as risk management, project management, and IT service management.

The broader perspective

In Summer 2023, Nordic RCC revealed its vision of *"Bridging the Nordic power systems to enable the green energy transition"*, putting emphasis on the bigger picture of our coordinating role. The green energy transition brings complex challenges for the operation of the electricity grid. It entails technologies that will increase the electrification of society as well as a larger degree of the electricity to come from renewable energy sources. These factors and the speed of their integration are outside the control of Nordic RCC; however, the increased complexity implies the need for increased coordination across borders, why we must always relate our services, development, and the value we provide to the broader environment within which we exist.

We do it together

We are proud of all the things, Nordic RCC has accomplished this last year. This has only been possible due to the competent and engaged employees and consultants, working intensely to develop valuable services and strengthening the foundation for us to succeed in the years to come.

However, we cannot do it alone. We can only succeed in collaboration with the Nordic TSOs, our ecosystem, and our partners, helping us reach our goals in all corners of the organisation.
– We do it together!

Excited about the year to come

Building on the successes and learnings from 2023, we look into 2024 with a sense of eagerness and excitement. 2024 will be the year when Nordic RCC, together with the Nordic TSOs, will go into production with the flow-based capacity calculation. This will enable us to provide more precise and less conservative capacities to the market, increasing the possible flow of energy across the Nordic region and resulting in a more efficient utilisation of the European electricity grid.

In 2024, we will also reinstate Coordinated Security Analysis (CSA) as a service in operation, improved with the learnings from the prototype previously in operation. This is a service that we expect to bring much value and therefore a service, we are eager to get into operation.

Internally in Nordic RCC, 2024 will be marked by a continued focus on strengthening the foundation, getting ready for change. As we move towards the end of the year, focus will slowly move more towards increasing efficiency and adding value across the activities we perform. Part of being ready for the future entails going into 24/7 operation, which will also be quite the milestone for Nordic RCC, having operators on shift always – 24 hours a day, 365 days a year. As an organisation, we must find a good way to integrate this into our culture and ways of working.

We look forward to the coming year, where we will continue to provide value to TSOs and society across the Nordic and European region.

Best regards,

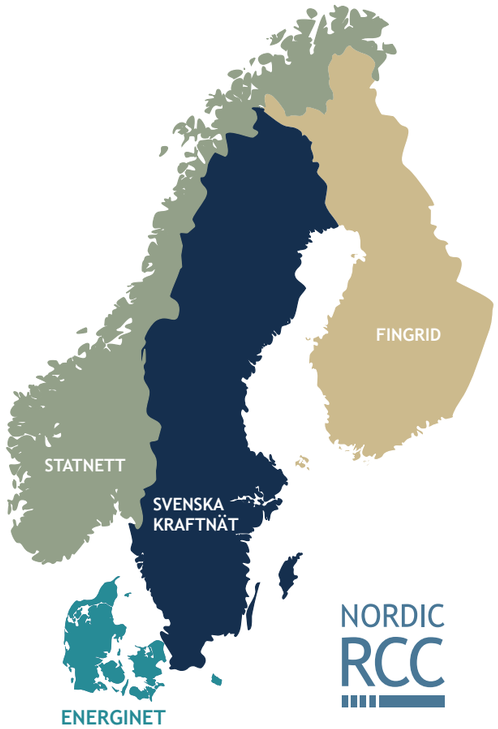
Henrik Kofod
CEO

Marina Louhija
Chairperson

ABOUT NORDIC RCC

Nordic RCC is an independent company that provides regional coordination and insights regarding power systems for the benefit of the Nordic and European society. This is done through services primarily to the Nordic TSOs being Energinet in Denmark, Fingrid in Finland, Statnett in Norway, and Svenska Kraftnät in Sweden. These are also the four owners of Nordic RCC by equal share.

The Nordic TSOs are 4 out of 39 (40 from 2024) European TSOs organised in the European Network of Transmission System Operators for Electricity (ENTSO-E), operating their national electricity grid ensuring security of supply. By learning from historical events and envisioning future changes to power systems, it was decided by the EU that RCCs are necessary to provide the TSOs with a regional overview and information from neighbouring TSOs' control areas. This need was formalised and mandated by the EU regulation 2019/943 on the internal market for electricity and resulted in 6 RCCs covering different System Operation Regions (SORs) across Europe, with Nordic RCC supporting the Nordic SOR. In addition to covering each RCC's own region, RCC tasks are also provided on a Pan-European basis to ensure cross-regional coordination, and a full European overview.

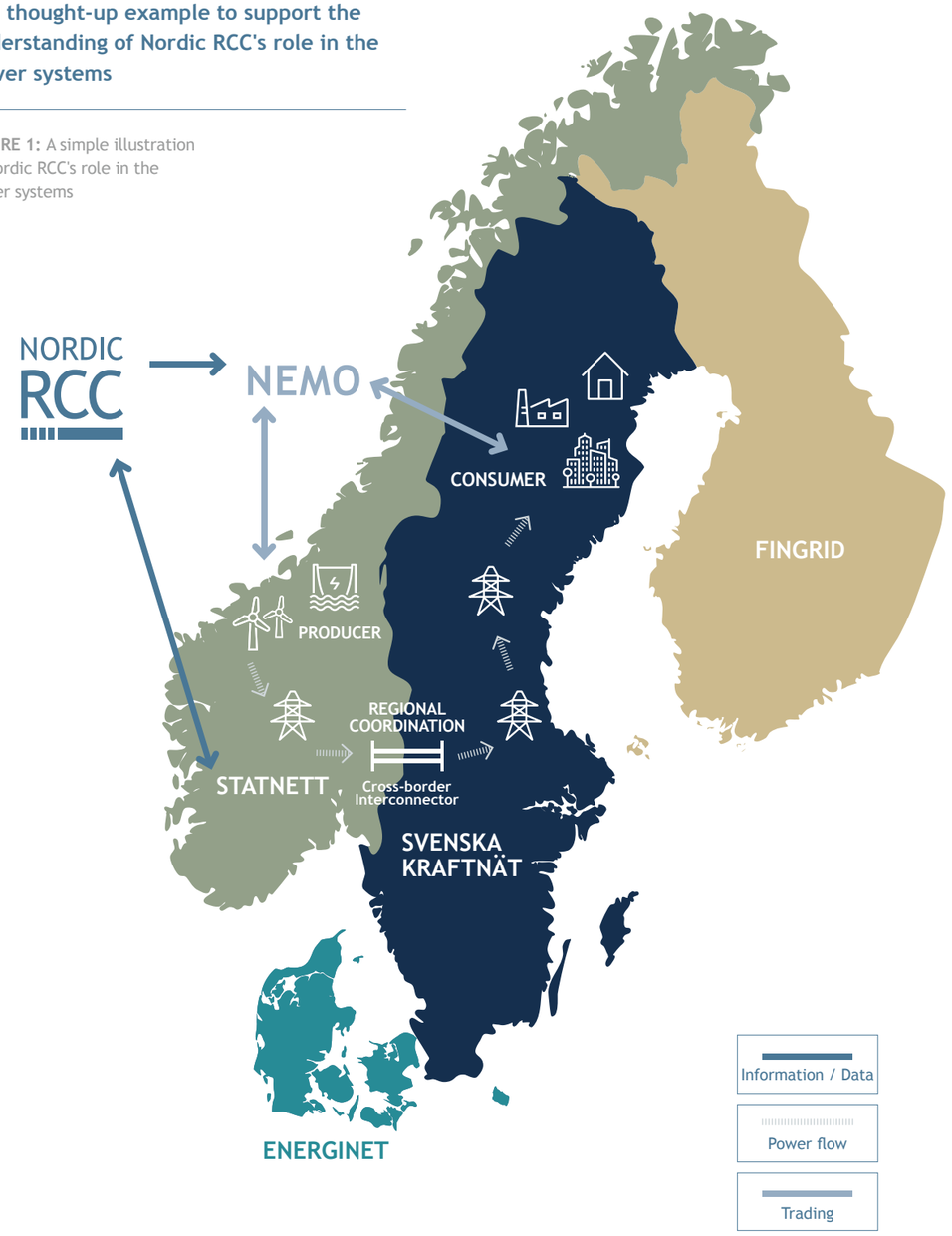


TSOs and RCCs are all part of a complex network that work together to produce, transmit, and distribute electricity to users across and between regions. One characteristic of the market for electricity is that, to a large degree, electricity must be produced at the same time as it is consumed, since storage of electricity is still very limited. The electricity network is managed by markets that are run by Nominated Electricity Market Operators (NEMOs), where consumption and demand meet, and prices are set. However, in order for the market to function, it must be possible to transfer electricity from where it is produced to where it will be used, and the market must know how much it is possible to transfer. Electricity is transferred in the physical electricity grid operated by TSOs. Nordic RCC provides data primarily on the Nordic grid to the TSOs as well as capacities in the grid to the market.

Nordic RCC is a small but important part of providing secure, efficient, and transparent power systems in the Nordic region and in Europe.

Nordic RCC supports the operational planning of the entire Nordic region. In this illustration it is exemplified using power flow from producers in Norway to consumers in Sweden. This is a simplified and thought-up example to support the understanding of Nordic RCC's role in the power systems

FIGURE 1: A simple illustration of Nordic RCC's role in the power systems



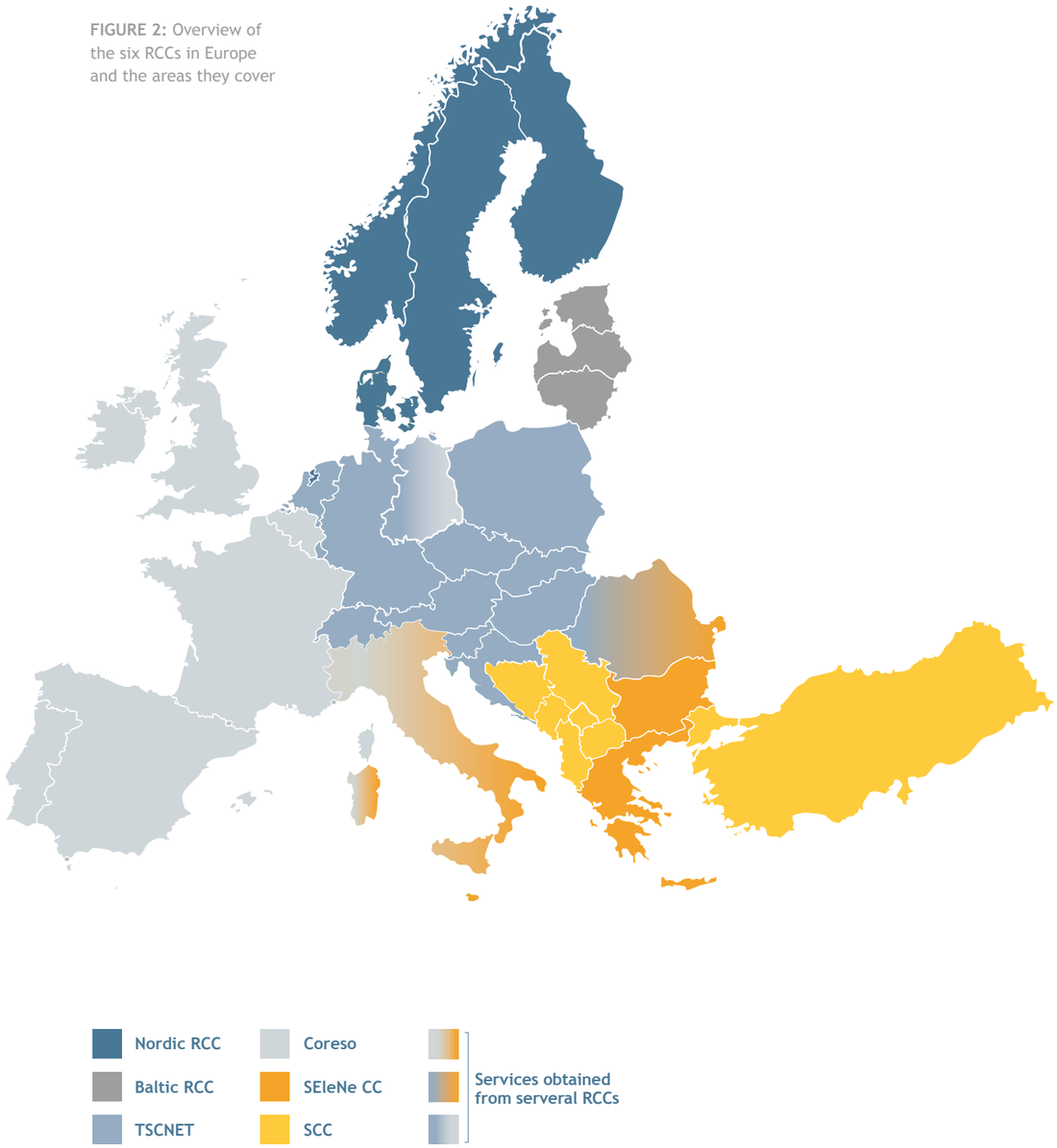
MARKET: Producers and consumers meet to sell and buy electricity. The market is operated by NEMOs that cover the whole region.

OPERATIONS: Each Nordic TSO operates its own national transmission grid. The TSOs' control areas are here color-coded and labeled with the respective TSO.

REGIONAL COORDINATION: Nordic RCC provides data to support the operational planning of the TSOs. Here it is examplified with information flow to and from Statnett, that in reality exists for all four TSOs. Nordic RCC also provides data to the NEMOs.

To enable an effective internal electricity market across Europe, the RCCs have been established to support the operational planning of the TSOs in their region, and together coordinate across the Pan-European market.

FIGURE 2: Overview of the six RCCs in Europe and the areas they cover



DID YOU KNOW

The RCCs' establishment is regulated in EU regulation 2019/943 which is part of the "Clean energy for all Europeans package". The package of legislation also includes directives on "Energy performance in buildings", "Renewable energy" and "Energy efficiency" along with other directives and regulations[1].

NORDIC RCC IN THE GREEN ENERGY TRANSITION

Nordic RCC has three general purposes: supporting the TSOs in ensuring security of supply, increasing the efficiency of the power systems, and facilitating transparency. These purposes are imperative to enabling the green energy transition. The future greener power systems are characterised by large-scale renewables and new technologies that need to be integrated, electrification of various industries that increases demand, and shorter time intervals for electricity operations and markets to support increasing flexibility.

Operating the grid securely will become increasingly challenging with the increase of intermittent renewable production. With a complex and highly interconnected Nordic and European power system, a high degree of regional coordination is essential for the success of the future power system.

RCCs provide the TSOs with a regional overview and facilitates cross-border collaboration being part of creating the foundation which ensures that renewables can be securely integrated alongside increased electrification in society. This includes coordination of maintenance and building of grid elements, forecasts of the demand and supply to assess adequacy in the system, or complex calculations on the capacity of grid elements. The services Nordic RCC delivers provide information useful for the secure operation of the grid, facilitate transparency, and support the optimisation of the utilisation of the grid.

[1] https://energy.ec.europa.eu/topics/energy-strategy/clean-energy-all-europeans-package_en

KEY SERVICES IN 2023

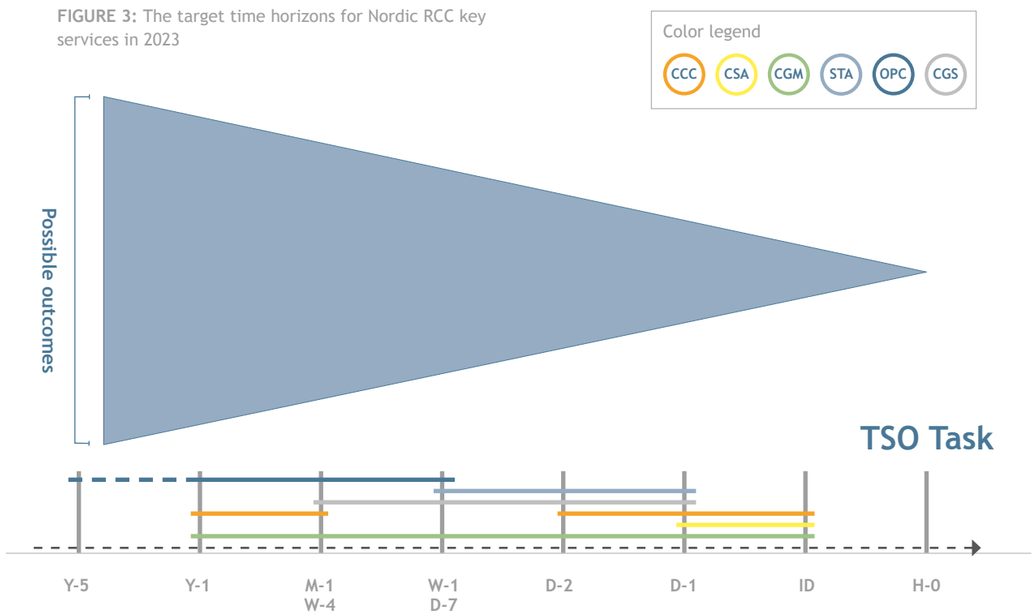
Nordic RCC enables the green energy transition by providing services and insights to TSOs, primarily the Nordic TSOs. Further, Nordic RCC also provides services to a few TSOs that are part of another region, the Capacity Calculation Region (CCR) Hansa (covering Norway, Sweden, Denmark, the Netherlands, Germany, and Poland), as well as TSOs across Europe for for specific Pan-European tasks (see the geographical scope of Nordic RCC on page 47).

According to EU regulation 2019/943, which is the regulatory foundation for Nordic RCC, 16 tasks are described in Article 37.1 that RCCs are to perform. 6 of these are also described in the Network Codes and Guidelines and have been transferred to the RCC at its establishment in 2022. In addition to the 16 regulated tasks, Nordic RCC has also been tasked with a total of 4 additional tasks from its owners. 3 of these additional tasks have been assigned to Nordic RCC in 2023. In addition, methodologies related to 2 of the 16 regulated tasks have been approved by ACER in 2023, releasing them for development by the RCCs.

Currently, Nordic RCC has 8 regulated tasks in operation with some of these still being further developed. Other regulated tasks are still being developed to go into operation (an overview of the regulated tasks can be found on page 90). From the moment when tasks are delegated to Nordic RCC until they go into operation, many complex processes must be carried out. These processes span from interpreting the nature of the service, defining the service to bring most value (also taking into account the Nordic region and its specific characteristics), and developing processes and applications to operationalise the service.

Out of the 20 combined services (regulated and additional), the 6 services that have been transferred to Nordic RCC at its establishment, have continued to be in focus in 2023. Coordinated Capacity Calculation (CCC) has been particularly prioritised due to the focus on flow-based methodology and the work towards go-live. This has also given priority to Common Grid Model (CGM) and Coordinated Security Analysis (CSA) as they are prerequisites for a successful day-ahead flow-based capacity calculation go-live. Read more about all the regulated tasks in the section “Nordic RCC Task Monitoring”.

FIGURE 3: The target time horizons for Nordic RCC key services in 2023



COORDINATED CAPACITY CALCULATION (CCC)

Electricity is freely traded across borders in the internal electricity market. However, the limits of transmission capacity must be respected. This service calculates the secure power market capacities to maximise this transmission capacity offered to the market, while maintaining grid security.

COORDINATED SECURITY ANALYSIS (CSA)

The possibility to highlight and visualise possible operational security risks in advance gives the TSO operators additional time during the preparation and planning phase to investigate possibly needed remedial actions, thus aiding operators in their decision-making in real time. This service provides operational support to the TSOs to identify operational security risks and recommends preventive remedial actions to the individual TSOs.

COMMON GRID MODEL (CGM)

Based on national Individual Grid Models (IGMs), Nordic RCC provides a Common Grid Model (CGM) representing the power systems in the Nordic and Pan-European area. The Nordic CGM is the foundation for several of the services provided by Nordic RCC, including CSA, CCC and OPC.

SHORT-TERM ADEQUACY (STA)

Nordic RCC investigates whether the reliable available expected production capacity can meet the expected consumption at any given time while also taking into consideration restrictions in the transmission grid. If there is insufficient reliable available production capacity to meet the consumption, measures need to be taken by the TSOs to avoid an adequacy situation.

OUTAGE PLANNING COORDINATION (OPC)

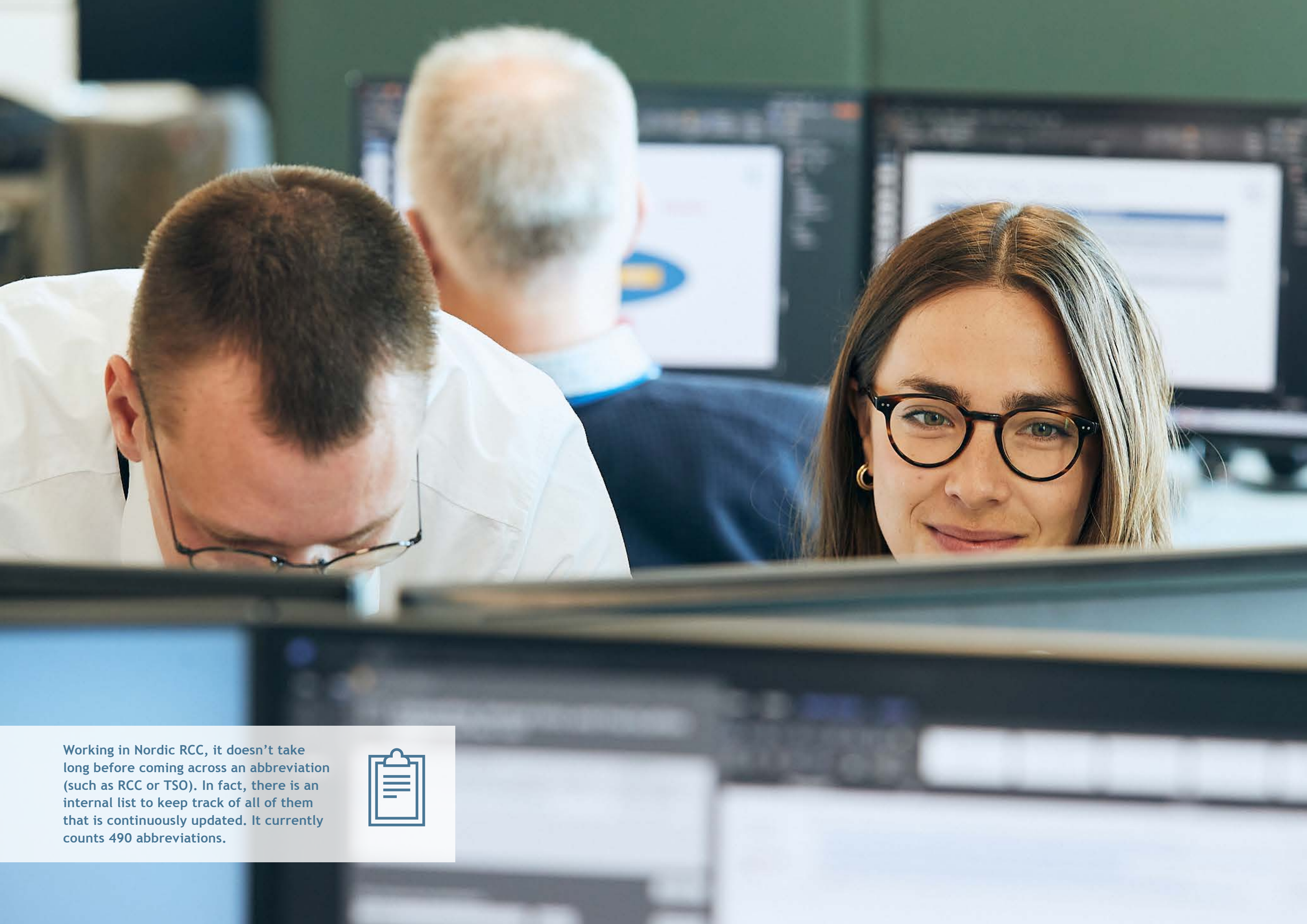
As it is necessary to perform maintenance of the power grid, outages are a condition of the operation of the grid. Outages of grid elements and production units affect neighbouring countries and must be coordinated in order to ensure the secure operation of the grid. This service coordinates the outages to optimise the availability of the regional and European power grid.

CRITICAL GRID SITUATION (CGS)

Critical Grid Situation is a task that is not regulated by article 37.1, but instead an additional task requested by the owners. Critical Grid Situation is defined as a critical situation that cannot be solved at a national level and therefore requires coordination between one or more TSOs. CGS is a coordination service performed by RCCs to facilitate a regional or cross-regional coordination in critical grid situations.

OTHER SERVICES

Nordic RCC, together with the other RCCs, is prepared to carry out one of the regulated tasks regarding post-operation and post-disturbances analysis and reporting, coined RIAR (Regional Incident Analysis and Reporting). Further, Nordic RCC is prepared to carry out consistency check of Defence & Restoration Plans and Regional Crisis Scenario. In 2023, the focus for the Regional Crisis Scenario service has been to update the RCC tasks in the methodology. The next consistency check of Defence and Restoration plans will take place in 2024. The task Training & Certification is partly in operation with training of operators, however, with the certification process still under development.



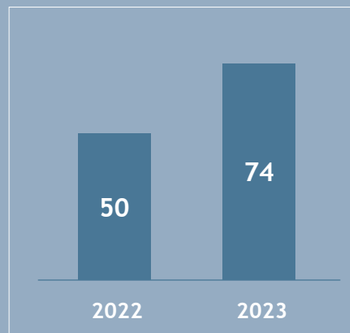
Working in Nordic RCC, it doesn’t take long before coming across an abbreviation (such as RCC or TSO). In fact, there is an internal list to keep track of all of them that is continuously updated. It currently counts 490 abbreviations.

NORDIC RCC AT A GLANCE

On these pages, Nordic RCC is presented at a glance through various figures. You can learn about our organisation and statistics on the people working here, about performance through financial and operational indicators, and about the status of planned development.

The indicated numbers are those true as per 31 December 2023, unless stated otherwise. For comparable numbers, it is those true for 31 December of the indicated year. Numbers relating to employees are in this section head-counts and not FTEs.

NUMBER OF EMPLOYEES

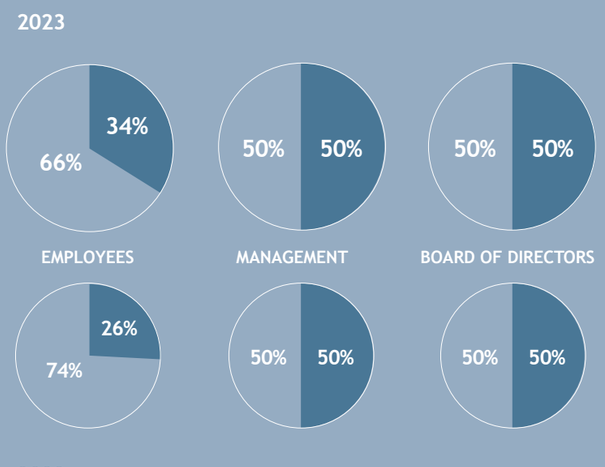


GROWTH IN EMPLOYEES IN 2023

48%

The number of people employed by Nordic RCC A/S.

GENDER DISTRIBUTION

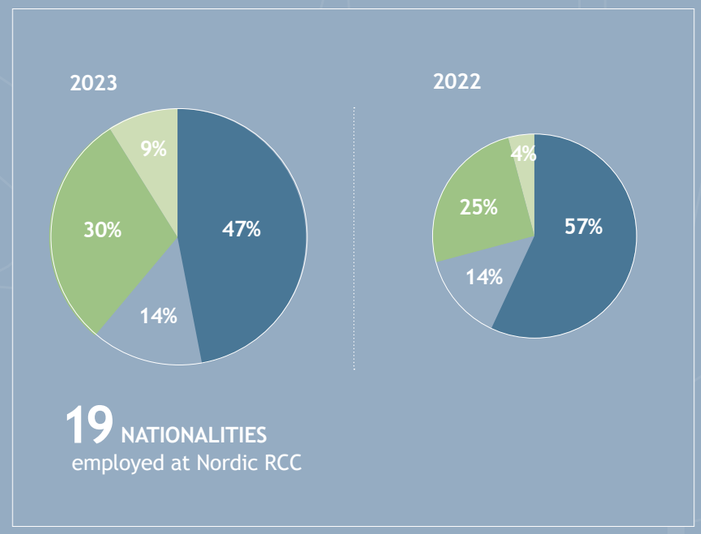


Female

Male

The proportion of respectively males and females of the total number of
a) all employees employed by Nordic RCC,
b) members of the leadership team, and
c) members of the Board of Directors.

NATIONALITIES



19 NATIONALITIES
employed at Nordic RCC

Denmark

Europe

Nordics

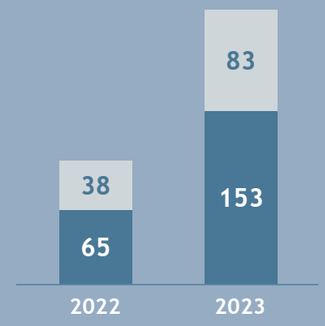
World

The nationalities of Nordic RCC employees divided into four categories; Denmark, Nordics, Europe, World. For employees with dual nationality, only one nationality is counted. A Danish nationality is counted as 'Denmark', a Norwegian, Swedish or Finnish nationality is counted as 'Nordics', a European nationality not being Danish, Norwegian, Swedish or Finnish is counted as 'Europe' and all other nationalities are counted as 'World'.

FINANCIAL KEY NUMBERS, in mDDK

CAPEX
Capital expenditures are costs for long-term investments. The number can be derived from the statement of cash flow as the purchase of office and IT equipment and intangible assets.

OPEX
Operating expenditures are costs for day-to-day activities. The number can be derived from the income statement by adding the employee benefits expenses and operating expenses.



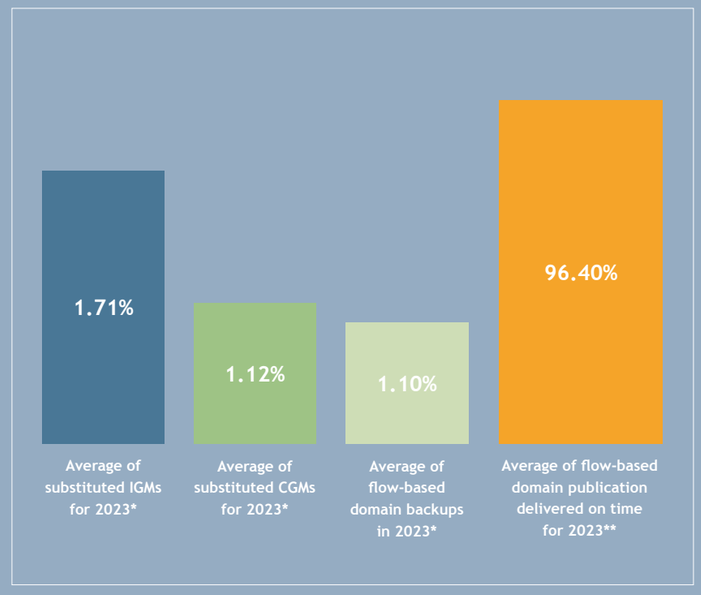
The financial development and composition of Nordic RCC based on key financial indicators, OPEX and CAPEX.

2022 include numbers from 1 July - 31 December 2022. 2023 include numbers from 1 January - 31 December 2023.

PERFORMANCE INDICATORS FOR FLOW-BASED CAPACITY CALCULATION PROCESS

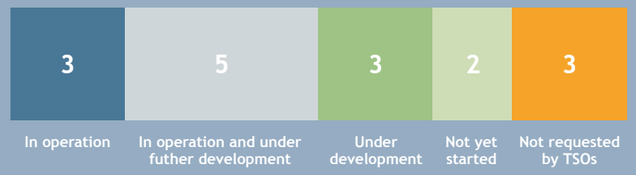
*with 0% being perfect performance

**with 100% being perfect performance



The numbers are the average of the calendar year 2023. The three indicators on the left would have perfect performance at 0%, the indicator on the right would have perfect performance at 100%. Substituted IGMs and CGMs as well as flow-based domain backups are used when the IGM, CGM, or flow-based domain is invalid (or missing). All three indicators are calculated for every 1 hour the entire year. Flow-based domain publication has a daily deadline at 09:30, and the indicator shows the percentage of times that deadline was met for 2023.

STATUS OF REGULATED TASKS



4 ADDITIONAL TASKS
are requested from the Nordic TSOs in addition to the regulated tasks

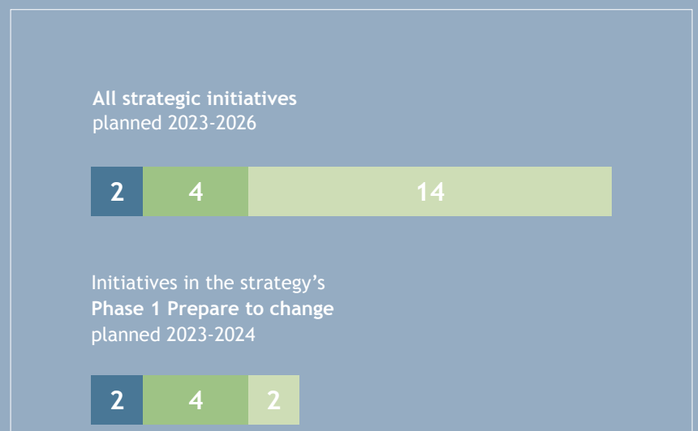
Nordic RCC has 20 tasks, 16 regulated by EU regulation 2019/943 and 4 additional tasks requested by its owners. The status of development of the regulated tasks is shown here. See a full overview of the regulated tasks on page 90.

DID YOU KNOW

Nordic RCC plans multiple events for the employees throughout the year, with different purposes. Twice in 2023, seminars were held for both employees and consultants, one with a focus on change management and one with a focus on the strategy. May is dedicated for physical exercise with the tradition 'Active May', where Nordic RCC competes in teams to log the most active minutes. This active form continues with the participation at the annual DHL relay.

Other activities do not necessarily have any higher purpose than enjoying time with our colleagues, which is reason enough. For instance, Nordic RCC has adopted our own version of the Swedish tradition, Fika, with occasionally company-wide coffee and snack breaks - tailored to the season.

STATUS STRATEGIC INITIATIVES, Strategy 2023-2026



In Nordic RCC's Strategy, 20 initiatives have been planned over 3 years in 3 phases. The strategic initiatives are categorised as finalised once the defining work has been completed, meaning that implementation might still be remaining. Many initiatives are planned for after 2023. The first phase in the strategy, Phase 1 Prepare to change, is to take place during 2023-2024.

The Board of Directors is consisting of one representative from each of the owners of Nordic RCC, the four Nordic TSOs. Each Board member has competences and experience in different areas to ensure a well-rounded and competent Board of Directors. The chairpersonship rotates between the members every two years and is currently held by Fingrid's representative, Marina Louhija.

NORDIC RCC BOARD OF DIRECTORS AND CEO, FROM LEFT:
Erik Ek / Strategic Operations Manager at Svenska Kraftnät and member of the Board at Nordic RCC
Kristin Munthe / Senior Vice President at Statnett and member of the Board at Nordic RCC
Henrik Kofod / CEO at Nordic RCC
Nicolaj Nørgaard Peulicke / Group Vice President, Innovation and Digitalisation at Energinet and member of the Board at Nordic RCC
Marina Louhija / Senior Vice President, General Counsel at Fingrid and Chairperson of the Board at Nordic RCC

FIGURE 4: Nordic RCC Organisation and Governance. Nordic RCC is organised and governed as seen here. It consists of five line functions and two support functions with the CEO responsible for the day-to-day management. The CEO reports to the Board of Directors and is advised by the Cooperation Committee on operational matters.

GOVERNANCE

BOARD OF DIRECTORS

Governs Nordic RCC and consists of one representative from each of the shareholders; Energinet, Fingrid, Statnett, and Svenska Kraftnät.

CHIEF EXECUTIVE OFFICER

Is in charge of the day-to-day management of Nordic RCC's overall business.

COOPERATION COMMITTEE

Shall work to support the development and improvement of the operational interfaces and be the "customer voice" in order to establish an efficient operational cooperation between Nordic RCC and the Nordic TSOs.

LINE ORGANISATION

HEAD OF BUSINESS SUPPORT

Supports the business by being responsible for Finance, HR, Legal, Board, Communication and Facility Management.

CHIEF INFORMATION SECURITY OFFICER

Is responsible for Information Security, Risk, and Compliance Management, including monitoring, guiding, and advising on related measures necessary to work with critical infrastructure.

HEAD OF BUSINESS DEVELOPMENT

Manages the development of tasks; improving those in operation, adding new time frames, and developing new tasks.

HEAD OF PROJECT IMPLEMENTATION

Manages the implementation of bigger projects and programs needed to perform development and operation.

HEAD OF DATA AND ANALYTICS

Manages the team responsible for data architecture and governance, common grid model development and quality, analytics, and reporting.

HEAD OF OPERATIONS

Is responsible for the operations in the coordination centre delivering the tasks to the TSOs with a team working two shifts per day 7 days per week.

HEAD OF IT SERVICES

Manages the team responsible for IT architecture, infrastructure, IT support, application development and everything in between needed to perform the business tasks.

In 2024, Nordic RCC will put a high focus on the go-live of the flow-based capacity calculation, on reinstating Coordinated Security Analysis (CSA) as a service in operation, and on going into 24/7 operation – 24 hours a day, 365 days a year.

NORDIC RCC STRATEGY

In June 2023, Nordic RCC launched its first strategy to cover the coming three years. The strategy outlines the vision and mission of Nordic RCC, the desired strategic position by the end of the strategy period, as well as a roadmap to reach those ambitions, consisting of strategic initiatives divided into phases.

Nordic RCC's Vision & Mission statements are defined to be long-lasting and are intended to serve as guiding stars for the company, during, as well as following, this strategy period. The vision *"Bridging Nordic power systems to enable the green energy transition"* is the overall purpose of Nordic RCC, bringing together TSOs and facilitating cross-regional collaboration to succeed with the green energy transition.

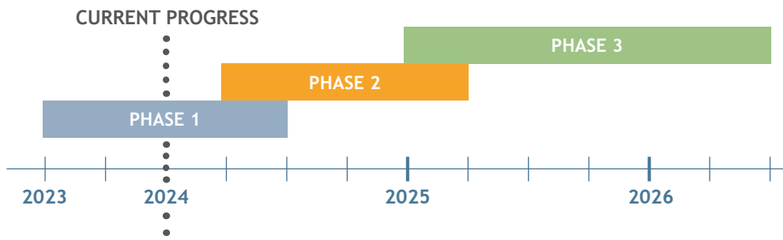
The mission statements answer what we do: *"We provide critical Nordic and European services and insights to Transmission System Operators for the benefit of society"*, how we do it: *"Through collaboration, we proactively enable Transmission System Operators to optimise beyond their individual capabilities"*, and why we do it: *"We digitalise to increase security, efficiency, and transparency of Nordic power systems"*.

By the end of the strategy period, it is the aspiration that Nordic RCC *"creates value beyond what is regulated and shows proactiveness by eyeing opportunities"*, which defines the compressed version of the strategic desired position. In order to get there, 20 strategic initiatives have been identified and prioritised to ensure that the right activities are done in the right order to bring most value. The initiatives have been divided into 3 phases with distinct characteristics that chronologically drive Nordic RCC towards its desired position; Phase 1 Prepare to Change, Phase 2 Improve Efficiency and Value-add, and Phase 3 Expand our Influence. For more information about Nordic RCC strategy, information can be found on the Nordic RCC website[2].

Since the launch of the strategy, Phase 1 has been kicked off with multiple strategic initiatives having been started and a few of them also finalised. In 2024, phase 1 is set to be finalised and by that, the foundation is in place for the following phases. Phase 2 will also be started, and most initiatives in that phase run throughout 2024. All strategic initiatives are progressing as planned.

[2] www.nordic-rcc.net/strategy

FIGURE 5: The three phases of Nordic RCC's strategy



PHASE 1	PHASE 2	PHASE 3
PREPARE TO CHANGE	**IMPROVE EFFICIENCY AND VALUE-ADD**	**EXPAND OUR INFLUENCE**
We focus on succeeding with current tasks to secure trust with the TSOs. We ensure that we get a solid foundation in place to succeed with the strategic phases to come. We know who we are, and we know where we are going. We act with one voice.	We improve the way we work to become more efficient and customer-oriented. We push the boundaries for the value our services provide to society through collaboration with the TSOs. We drive digitalisation.	We proactively pave the way for synergies across Nordic TSOs by leveraging regional processes, expertise, and insights. We engage proactively with the Nordic TSOs, other RCCs, fora in ENTSO-E, etc. to add value to the Nordic TSOs for the benefit of the society. We become the one voice representing the Nordic TSOs on RCC-related topics.

OUR STRATEGY 2023-2026

NORDIC RCC

VISION

Bridging Nordic power systems
to enable the green energy transition.

MISSION

We provide critical Nordic and European services and insights to Transmission System Operators for the benefit of society.

Through collaboration, we proactively enable Transmission System Operators to optimise beyond their individual capabilities.

We digitalise to increase security, efficiency, and transparency of Nordic power systems.

DESIRED POSITION 2026

In our desired position, we create value beyond what is regulated, and we show proactiveness by eyeing opportunities.

Phases to reach desired position

Current position

PHASE 1
Prepare to change
1

PHASE 2
Improve efficiency and value-add
2

PHASE 3
Expand our influence
3

Desired position

SELECTED CASES OF THE STRATEGIC INITIATIVES

Future-proof Nordic RCC Coordination Centre

The first initiative that was initiated related to Operations, the department of Nordic RCC which delivers the tasks to the TSOs, and how Nordic RCC can ensure that this function is fit for the future. The desired position for Operations as well as initiatives to reach that position have been defined with implementation running into 2024. This has provided a stable foundation for effective delivery of Nordic RCC's tasks.

Strong Collaboration and Relationship with TSOs

The aim of this initiative is to ensure that the way Nordic RCC collaborates and engages with its customers, the Nordic TSOs, in whole and in various forums is effective and value-adding. Through the last 3 months of 2023, an analysis was carried out with input from multiple relevant stakeholders of the initiative. On the basis of the analysis, 15 initiatives have been identified of which 5 has been categorised as top priorities and will be addressed with the Chair and members of the Cooperation Committee during the first half of 2024.

Nordic RCC Values and Culture

As part of establishing Nordic RCC as an independent organisation, this initiative revolves around the values and culture of the organisation. The first step was initiated in late 2023 with the purpose of identifying and defining the values existing in the company in an inclusive process with all employees. This phase will be finalised in the first half of 2024 with the aim of strengthening desired behaviours and enabling cross-functional collaboration.

Goals, KPIs, and Transparent Reporting Structure

This initiative has the purpose of ensuring a meaningful and value-adding structure and use of goals and Key Performance Indicators (KPIs) across Nordic RCC, reported in a transparent and useful way. Relevant and transparently reported KPIs and goals provide insights, knowledge, and focus areas. The first deliverable of this initiative was an internal dashboard of various KPIs relating to the flow-based EPR, coined the digital cockpit, launched in October 2023. The current digital cockpit is a prototype meant to be expanded both in terms of automation and included KPIs.

TIMELINE 2023

VISUAL DOMAIN VALIDATION

As part of the day-ahead flow-based capacity calculation process, operators at the TSOs receive a flow-based domain that they are to validate. This has previously been done looking at a large dataset of numbers, providing little overview. To support the TSO operators in their task, Nordic RCC has developed an application that provides a visual representation of the domain for easier validation, the Visual Domain Validation application (VDV).
The first release of the application was launched in January 2023 as a simple version. Based on feedback from the TSO operators, the application has been further developed with two additional releases in March and September 2023, providing even more features. Though still being further developed, the tool has already proved valuable, and its features have become part of the requirements for the go-live of flow-based methodology. It showcases how Nordic RCC can provide value to the Nordic TSOs and the agility and speed with which it is possible to spot needs and turn them into useful applications.

MIGRATION TO NEW FUTURE-READY IT INFRASTRUCTURE

Much of the value Nordic RCC provides is relying on IT systems and applications – all dependent on IT Infrastructure. During 2023, Nordic RCC has, in collaboration with a new supplier, migrated to an entirely new and future-ready IT infrastructure, enabling Nordic RCC to continue to develop and support the TSOs' and Nordic RCC's business services and applications, both now and in the future. In the process of migrating the IT infrastructure, a significant portion of Nordic RCC's applications have also been containerised to enable a continued and improved development process, scalability, and high availability of Nordic RCC systems and applications.

2023

JANUARY
1st release of the application Visual Domain Validation

FEBRUARY
First formal Cooperation Committee meeting

MARCH
Completion of EPR 3-month reporting period

Visual Domain Validation Release 2

First full overview of the Nordic cross-project landscape

APRIL
New additional tasks: Reliability Margins Calculation, Relevant Assets Calculation, Nordic Cross-Project Coordination

Nordic RCC Annual General Meeting 2023 and approval of the first Nordic RCC Annual Report

MAY
Switch to Pan-European STA from Nordic application (Nordic Overview of Adequacy)

NorCap Release 5

First Nordic RCC Working Environment Survey

JUNE
Launch of Nordic RCC Strategy

JULY
NRA approval of EPR 3-month report

ACER approval of methodology for two regional tasks; 'Regional Sizing of Reserve Capacity' and 'Regional Procurement of Balancing Capacity'

AUGUST
First Nordic RCC annual Stakeholder Meeting

SEPTEMBER
Delivery of Minimum Viable Solution Security Plan Compliance Audit report to ENTSO-E

Visual Domain Validation Release 3

OCTOBER
Launch of Digital cockpit prototype

Project parties postpone go-live of Nordic Flow-based Capacity Calculation from Q1 2024 to October 2024

NOVEMBER
Migration to new future-ready IT Infrastructure

First NordREG annual oversight

Nordic RCC joins Nordic Power Shortage Exercise for the first time

Year-ahead OPC process uses year-ahead CGM for the first time

DECEMBER
NorCap Release 6

Nordic RCC hosts 2023 Nordic Day for trainees

Establishment of Joint Tooling Group with other RCCs

EPR 3-MONTH REPORTING PERIOD COMPLETED

The Nordic region is implementing the flow-based methodology for calculating capacities, changing from the conservative NTC (Net Transfer Capacity) method. The flow-based methodology is a more complex calculation, taking in multiple factors and is therefore able to calculate more accurate grid capacities, ultimately providing more capacity to the market. This is a very impactful and important change to the power systems provided in collaboration between Nordic TSOs, NEMOs, and RCC. To ensure a smooth implementation of the flow-based methodology, there are multiple steps to go-live. One of the most important milestones is the EPR, which was initiated in 2022. The EPR is a trial period, where the flow-based process is performed alongside the NTC method. Nordic NRAs must approve the EPR to move further towards go-live. For the NRA approval, the EPR process must live up to certain KPIs for three consecutive months. The 3-month reporting period was completed in March 2023. A report was written and approved by the NRAs later in the year, allowing the process towards day-ahead flow-based capacity calculation go-live to move forward. The EPR is continued until go-live in October 2024.

ACER APPROVAL OF REGIONAL SIZING TASK AND PROCUREMENT TASK

In July 2023, ACER approved the methodology for two RCC tasks; 'Regional Sizing of Reserve Capacity Methodology' and 'Regional Procurement of Balancing Capacity Methodology'. Both these tasks are part of the 16 tasks described in the EU regulation 2019/943, however, without approved methodologies, the RCCs have not been able to start the development, implementation or operation of the tasks. With ACER's approval of the methodologies, Nordic RCC can begin this work. The road from methodology to finalised, value-adding service in operation is, however, not straight forward. The methodologies must be interpreted to understand the requirements, related to existing tasks and projects in the region, and put into a Nordic regional context to ensure value is added best possible. When that is established, the development can start, and once developed, the process can go into operation for the benefit of society and the TSOs. The procurement task is to be implemented by January 2026 and the sizing task is to be implemented by July 2026.

INFORMATION SECURITY, RISK AND COMPLIANCE MANAGEMENT

Information and cyber security management

No critical security incidents have been observed or reported during 2023. Occurred security incidents have been handled in accordance with the approved procedures. No significant consequences have been identified, including financial loss, loss of reputation, compromise of systems and data, etc.

Nordic RCC formulated the company's Information and Cyber Security Strategy in March 2023. The overall objective of the Information and Cyber Security Strategy is:

"To ensure the confidentiality of the sensitive data handled within Nordic RCC's services, as well as to ensure the integrity and availability of the services supporting trust and reliability from key stakeholders".

Based on the prepared strategy and relevant regulation, particularly the Minimum Viable Solution Security Plan issued by ENTSO-E, Nordic RCC has established an Information Security Management System, including information and cyber security policies. The policies are structured in accordance with ISO (International Organization for Standardization) 27002[3].

During 2023, PwC carried out the mandatory annual audit of Nordic RCC's implementation of the Minimum Viable Solution Security Plan (MVS SP). PwC's audit demonstrated a significant development in maturity of the company and an improved implementation of required internal controls. PwC's audit report and Nordic RCC's plan for mitigating reported weaknesses were submitted to ENTSO-E on time. ENTSO-E has approved the submission and Nordic RCC's mitigation plan.

The cyber risk situation for 2023 has largely been influenced by the geopolitical situation following the war in Ukraine. The security authorities and other key stakeholders have called for society to prepare for state-sponsored cyberattacks. It is expected that this situation will persist in the near future, and that increased vigilance will be necessary for a long time to come. In such a threat landscape, it should be expected that Nordic RCC could be a target and must act accordingly. Nordic RCC is continuously implementing measures to increase vigilance and prepare for increased emergency preparedness in light of the security situation in Europe. Robust cyber security and basic IT hygiene are of high priority. It is still considered that ransomware is one of the most likely threats, and it is expected that an increase in attacks on suppliers and subcontractors, who could be exploited as a stepping stone, could happen.

In 2023, Nordic RCC joined the national Danish SektorCert[4] in order to further strengthen its information and cyber security. SektorCert monitors threats against the energy industry, facilitates knowledge sharing among the approximately 400 members, supports cyber incident handling, and contributes with technical security monitoring of networks and infrastructures operated by the members.

Compliance management

Nordic RCC is part of an ecosystem with evolving regulation. Nordic RCC's compliance management is anchored with a focus on business compliance and a focus on information and cyber security compliance. The two areas have been improved separately during 2023, and efforts to coordinate and ensure improvements and learnings across the two tracks will be initiated during 2024.

[3] Information security management systems and good practices.
[4] CERT: Computer Emergency Response Team.

Risk management

In 2023, a formal policy for risk management has been approved by the Board of Directors. This has been followed by the implementation of a more structured and company-wide risk management methodology. The overall approach, methodology, and tools are inspired by the methodology in COSO ERM (Enterprise Risk Management) and ISO 31000, with a strong focus on creating the right dialogues around risks and embedding the discipline in the day-to-day management of the company.

New risks are identified ad-hoc as well as on a regular basis. Response plans are followed to their completion, and critical risks are annually reported to the Board of Directors as part of a review and evaluation of the risk management process.

Whistleblower scheme

Already in October 2022 and although not mandatory by law, Nordic RCC implemented a whistleblower scheme. This scheme provides Nordic RCC's internal employees an opportunity to anonymously raise breaches of EU law falling within the scope of the whistleblower directive (Directive (EU) 2019/1937) as well as other serious breaches of Danish and EU law and other serious concerns.

In May 2023, the whistleblower scheme was extended to also include external consultants working in Nordic RCC.

Nordic RCC has not received any reports under the whistleblower scheme in 2023.

DID YOU KNOW

European TSOs and RCCs must comply with ENTSO-E's Minimum Viable Solution Security Plan to ensure an appropriate information security and risk level to obtain access to the Operational Planning Data Environment. Complying with the MVS Security Plan includes effective implementation of roughly 300 internal controls. Based on the annual mandatory audit performed by PwC in 2023, Nordic RCC increased their average maturity level from approximately 1.8 to 2.8.

RISKS

OPERATIONAL RISKS

Nordic RCC has identified three operational risks concerning the ability to deliver its tasks: necessary capabilities, cyber security, and complexity in the environment.

- Nordic RCC is dependent on specialised capabilities in order to develop and deliver its services. It is therefore essential to have the ability to attract as well as retain the necessary capabilities. The risk of not being able to ensure necessary capabilities is currently low, as it is experienced that turnover rate is low and interest for open positions are high.
- Many of the services, Nordic RCC provides, are dependent on IT applications, IT systems, and dataflows from the TSOs, which makes cyber threats a risk, especially with the sensitive nature of much of the work performed in the company in mind. The threat is increasing, resulting in the risk increasing, however, with Nordic RCC having awareness, processes, and training in place to mitigate and avoid cyber threats.
- Nordic RCC is part of complex environments, both in terms of its value chain as well as its regulatory environment. Most potential value is realised in connection with other stakeholders and projects, creating increased complexity. With future launch of the projects NBM (Nordic Balancing Model), 15' MTU (15-minute Market Time Unit), and FB Imp (Flow-based Implementation), the complexity is not expected to decrease.

FINANCIAL RISKS

Nordic RCC has limited financial risks.

- The currency risk is perceived as limited, since the majority of all transactions are in DKK, and the remaining are in EUR.
- The interest rate risk is limited as Nordic RCC has no investments and no interest bearing non-current liabilities apart from the lease related liabilities.
- The credit risk is perceived to be limited since the primary customers are the Nordic TSOs, which are state-owned or state-controlled.
- The liquidity risk, defined as the risk that Nordic RCC has insufficient financial resources to meet its commitments as they fall due, is likewise assessed as low, due to the cost-plus model which covers most of the activities of Nordic RCC. The ability to cover CAPEX commitments as they fall due are monitored closely by the management. In addition, Nordic RCC has obtained a DKK 30m credit facility with the purpose of covering potential short-term liquidity needs.

ACCOUNTING REPORT

Financials

Income statement

Nordic RCC realised revenues for 2023 of DKK 228.4 million which is more than double the revenues for the first financial statements reporting year, 2022, of DKK 97.7 million. This increase is primarily due to the fact that the first financial statements reporting year, 2022, only comprised revenue generating activities in the second half of 2022. In addition, Nordic RCC has experienced an increase in the activity level through both 2022 and 2023. This increase was slightly higher than the expectations for 2023 with revenues in the range of DKK 200-220 million.

More than 90% of Nordic RCC's revenue generating activities are covered by a cost-plus model with the Nordic TSOs, and the increase in revenues is therefore reflecting a parallel increase in costs and depreciations.

This revenue model also means that Nordic RCC under normal circumstances will generate a limited operating profit close to 5%.

The operating profit for 2023 was DKK 9.7 million (2022: DKK 5.2 million) with profit before tax of DKK 10.9 million (2022: loss of DKK 18.1 million). This profit is in line with the expectations for 2023 which were a profit before tax in the range of DKK 8-12 million.

Tax on profit amounts to DKK 1.8 million for 2023 (2022: DKK 3.6 million income caused by recognition of a deferred tax asset).

Profit for 2023 was DKK 9.1 million, a material improvement from the loss of DKK 14.5 million in 2022. The loss in 2022 was caused by one-time costs in relation to Nordic RCC's establishment.

Financial position and investments

Nordic RCC has material non-current assets of DKK 317.6 million as per 31 December 2023. The majority of which is comprised by intangible assets related to the development of the NorCap application (described below in the section 'Research and development activities'). This development was started jointly by the four Nordic TSOs before the establishment of Nordic RCC, and Nordic RCC received an asset contribution of DKK 266.2 million as per 30 June 2022. NorCap is gradually released to production. Therefore, while the work on NorCap has been continued through 2023 with total development investments of DKK 56.4 million, depreciations on releases already deployed for production were DKK 60.1 million in 2023.

In late 2023, Nordic RCC completed the migration of its IT infrastructure to an entirely new future-ready technical platform. This project was initiated in 2022 and 'construction in progress' was DKK 11.1 million as per 31 December 2022. This amount has, together with additions during 2023, been transferred to IT equipment in operations with a net balance of DKK 38.6 million by the end of 2023.

Tangible assets were DKK 41.5 million as per 31 December 2023, where IT equipment accounts for the majority with DKK 38.6 million and office equipment for the rest with a balance of DKK 2.1 million.

Cash flow

The cash position was DKK 89.8 million as per 31 December 2023, a DKK 36.4 million increase compared to the DKK 53.4 million as per 31 December 2022.

The statement of cash flows shows that this is caused by cash flows from operating activities of DKK 120.3 million and net cash flows from investing activities of negative DKK 83.4 million. In 2023, cash flows from operating activities are affected positively by a change in working capital of DKK 43.8 million, largely caused by an increase in trade and other payables from DKK 46.5 million as per 31 December 2022 to a balance of DKK 83.7 million as per 31 December 2023. This is an unusually high trade and other payables balance, which was caused by material milestone invoices received in December 2023, which falls due beginning of 2024. These milestone payments will be settled during the first months of 2024, resulting in both a negative impact on change in working capital and thereby also the cash position.

Expected financial development

During 2023, Nordic RCC has experienced an increased activity level which is expected to continue through 2024. Among other activities, Nordic RCC will go into production with the flow-based capacity calculation together with the Nordic TSOs, go into 24/7 operation, and reinstate CSA as a service in operation. Nordic RCC's financials for 2024 will also include the full-year

DID YOU KNOW

The building hosting Nordic RCC's offices in Copenhagen is built partly from reused material. The green atrium has wooden strips built using material from old window frames, the ceiling is partly made from reused plastic bottles, and the floor consists of reused rubber and concrete[5].

effect of increased staff and activity level realised and maintained during 2023.

In addition, depreciations and amortisations are expected to be in the range of DKK 80-90 million, up from DKK 66.7 million in 2023.

As a consequence of the increased activity level and higher depreciations, the revenues for 2023 are expected to be in the range of DKK 285-325 million.

The profit before tax in 2024 is expected to be in the range of DKK 12-15 million with an expected operating profit of close to 5%.

Research and development activities

The research and development activities described in this section cover the activities which falls within the definition of research and development activities in the IFRS Accounting Standard as adopted by EU. For more information about the development of services delivered to the TSOs, please read the section 'Nordic RCC Task Monitoring'.

Many of the services in Nordic RCC are highly dependent on specialised IT solutions. In terms of these IT solutions, development in 2023 has especially been performed for the applications NorCap (with a total investment in 2023 on DKK 53.7 million) and the related Visual Domain Validation, VDV, (with a total investment in 2023 on DKK 1.8 million). Both solutions have a relation to the service Coordinated Capacity Calculation (CCC) and the project FB Imp (Flow-based Implementation project). FB Imp is a Nordic project which Nordic RCC participates in together with the Nordic TSOs and NEMOs with the purpose of providing more accurate data on the capacities in the power system to the market participants. This enables a better utilisation of the grid for the benefit of the Nordic and European society. Flow-based go-live is planned for October 2024 with certain criteria having to be met for the project to go operational.

NorCap is an application used both for the CGM and CCC service to create the Common Grid Model (CGM) for the Nordic electricity grid and to calculate capacities (CCC) in the flow-based methodology. The tool had two releases deployed to production in 2023, Release 5 in May and Release 6 in December. The key functionalities that have been developed in 2023 are functionalities for day-ahead flow-based capacity calculation, improvements related to existing functionalities, and development of long-term capacity calculation for month-ahead and year-ahead time horizons. Some of the criteria for flow-based go-live relates to development of functionalities in NorCap which have been planned for a Release 6.1 in Q1 2024. Release 7 is planned for Q4 2024 following the go-live of flow-based capacity calculation.

One of the outputs of NorCap is the calculation of flow-based domains that is to be validated by TSO operators. VDV is an application to support the validation of the flow-based domain calculated in NorCap. This is done by providing the TSO operators with a better overview of the domain through visualisation. The VDV application went live in a first version in January 2023. Several new features have been, and are, being added such as flow-based 2D slide plots, a market map, and a summary dashboard. These features are required for flow-based go-live.

Environmental performance

Nordic RCC does not currently measure environmental performance. However, it is expected that the largest impact on the environment comes from running the office, IT infrastructure, and European travels.

The impact was expected to increase during 2023 as it has been a full year of activities compared to last reporting period. Further, the growth in Nordic RCC has required additional office space by the end of 2023. Like the existing office, the additional office space is rented in a building which has a platinum certification (the highest certification possible) on the American LEED rating system (a framework for healthy, efficient, carbon and cost-saving green buildings).

Knowledge resources

The services provided by Nordic RCC are all novel, in the sense that they have not been done prior to being tasked to the RCCs, at least on a regional basis. Further, the environment Nordic RCC operates within is very complex and requires a high level of security. This requires specialised solutions, both within processes and applications to deliver the necessary value from the services Nordic RCC delivers. In order for Nordic RCC to solve these both complex and novel challenges, there is a high dependency on specialised and valuable knowledge resources, especially with knowledge on the Nordic power systems, and power systems in general. Employees working in Nordic RCC need to be, and are, specialised with high educational levels and expert experience.

Uncertainty relating to recognition and measurement

Please see note 3 in the section 'Financial Statements' on page 109 for a description of accounting judgements, estimates and assumptions.

Subsequent events

No significant events have been experienced since the balance sheet date.

[5] https://www.cpcopenhagen.dk/de-groenne-vaerdier

NORDIC RCC TASK MONITORING

CONTENT

INTRODUCTION

This section of the Nordic RCC Annual Report covers the reporting obligation, as required in the EU regulation 2019/943 Article 46, and provides more information about implementation and operation (where relevant) of Nordic RCC tasks.

Following a few introductory topics, the legally mandated tasks are covered in the order prescribed by the regulation. Reporting for each task is divided into the following sections:

- **TASK DESCRIPTION**
  illustrates the target solution which Nordic RCC is working towards, and the *implementation status* illustrates how far Nordic RCC is in the implementation of the task.

- **OUTCOME OF MONITORING**, which follows the obligations in article 46.1, covers
  - operational performance,
  - issuance and implementation of coordinated actions/recommendations, and
  - effectiveness and efficiency.

- **FUTURE OUTLOOK**
  describes the further high-level implementation plans.

At the end of the reporting, identified shortcomings are described.

The different tasks are implemented to varying degrees and are still being developed further. For some tasks, no Coordinated Actions or Recommendations are issued yet, resulting in a limited ability to monitor this.

Regarding the monitoring and reporting of effectiveness and efficiency, it is seen as meaningful when the tasks are in operation. During the implementation phase, which is the phase most tasks are in in 2023, any statistical reporting is both very complex and is expected to have limited value.

In addition to the monitoring of regulated tasks, additional (non-regulated) tasks are also presented to provide transparency.

All European RCCs have aligned and strive to report similar KPIs for the reporting on their tasks. However, different regional implementation can lead to different reporting practices.

Monitoring and reporting of Nordic RCC tasks were initiated with its establishment 1 July 2022.

Geographical scope

Nordic RCC performs tasks within different geographical scopes; Nordic SOR and CCR Nordic, CCR Hansa, and Pan-European.

Pan-European tasks are e.g., OPC, STA, and CGM that have deliveries to all European TSOs. These tasks are, however, also performed regionally per System Operation Region (SOR), and Nordic RCC therefore performs these tasks in the Nordic region as well as Pan-European.

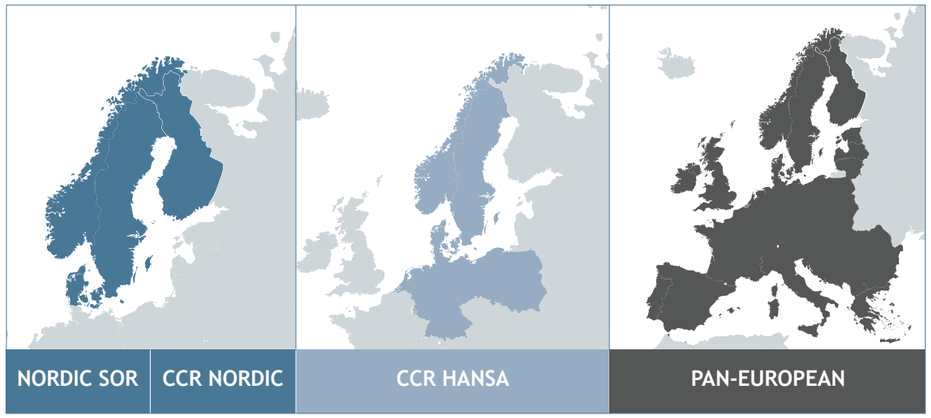
CCC and CSA are examples of tasks that are performed for each Capacity Calculation Region (CCR). Nordic RCC therefore performs these tasks in the Nordic and Hansa regions.

See the pictures below for an overview.

DID YOU KNOW

The RCCs work on the implementation of the same tasks, each in their own regional context.They work together both in ENTSO-E groups, within the RCC Working Table and through bilateral initiatives and visits. Thereby, RCCs find similarities, share experience and advice, and make use of synergies of cooperation where relevant and possible.

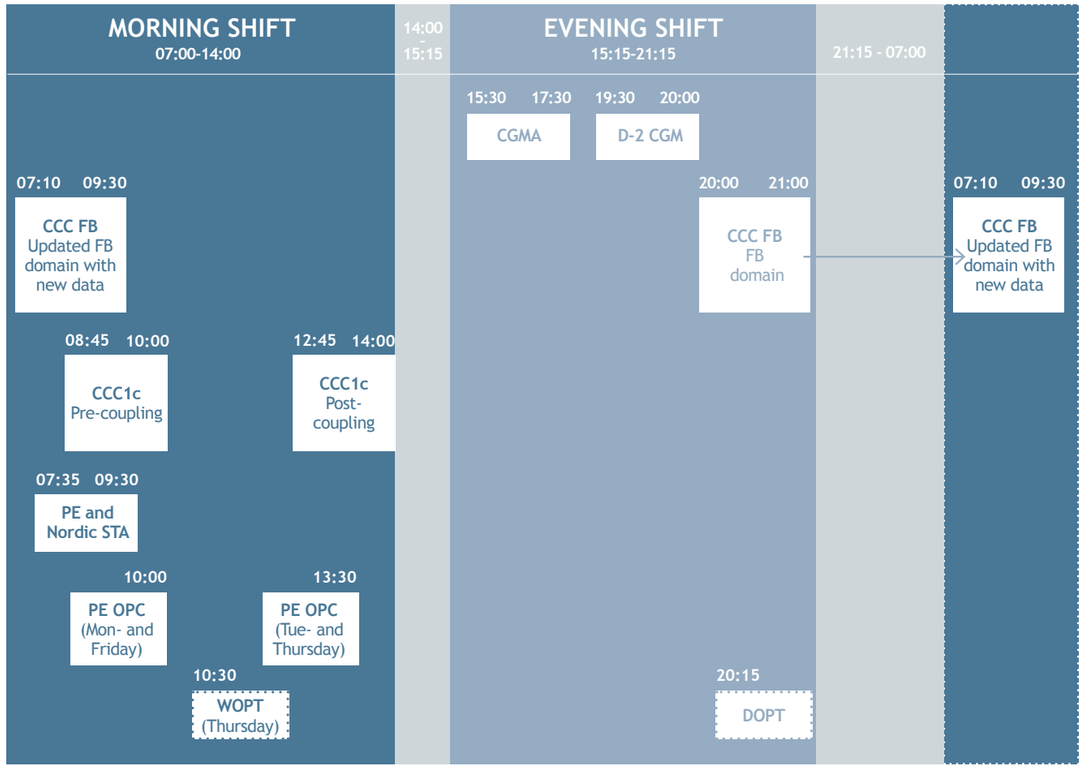
FIGURE 6: Geograpcial scope of Nordic RCC

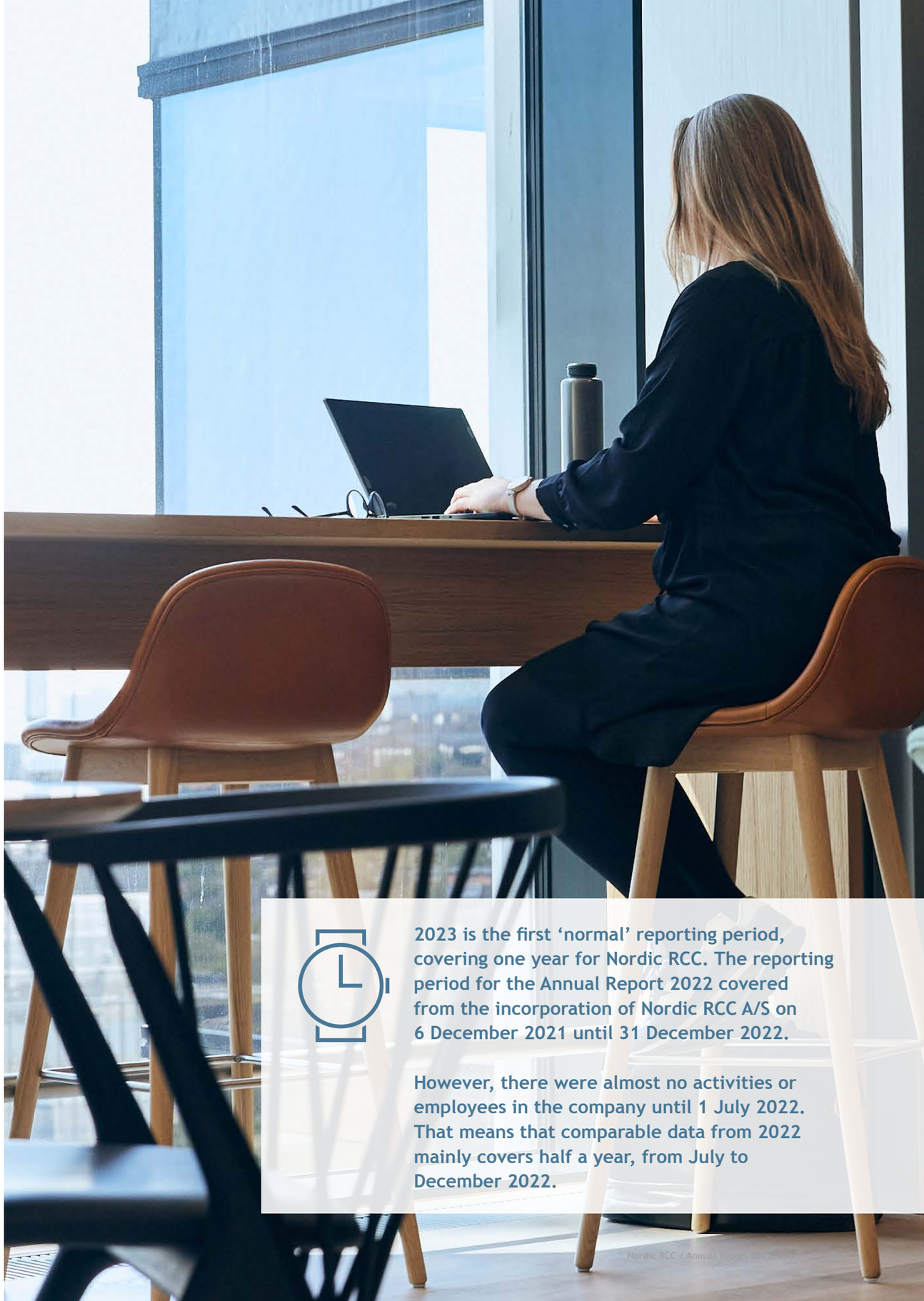


Operational timings

In 2023, Nordic RCC operated its daily tasks in two shifts – morning and evening. The timings of Nordic RCC's daily operational procedures and execution of tasks are depicted below, as of 31 December 2023.

FIGURE 7: Operational timings





2023 is the first 'normal' reporting period, covering one year for Nordic RCC. The reporting period for the Annual Report 2022 covered from the incorporation of Nordic RCC A/S on 6 December 2021 until 31 December 2022.

However, there were almost no activities or employees in the company until 1 July 2022. That means that comparable data from 2022 mainly covers half a year, from July to December 2022.

WOPT AND DOPT

WEEKLY OPERATIONAL PLANNING TELECONFERENCE (WOPT)

WOPT

The Nordic region performs the Weekly Operational Planning Teleconference every Thursday. During this meeting, Nordic RCC and TSOs discuss the operational situation of the region, sharing relevant information and taking actions to prevent or reduce risks. The call is divided as follows:

- A final coordination and communication of the outages for the upcoming week and a preliminary confirmation for the next four weeks in the Nordic region.
- An evaluation on the outages connecting to bordering regions of the Nordic countries.
- An analysis of the adequacy situation for the next seven days, focusing on the twelve Nordic bidding zones
- An assessment of the adequacy situation in bordering regions, raising awareness of possible risks.
- An operational discussion with relevant inputs from the TSOs.

The **WOPT** facilitates sharing the most relevant information for the region in the upcoming week with the objective of ensuring the best possible operation and coordination.

DAILY OPERATIONAL PLANNING TELECONFERENCE (DOPT)

DOPT

The Daily Operational Planning Teleconference is performed every evening in the Nordic region. It takes into consideration the input that every Nordic TSO believes is relevant, focusing on the next day of operation, but also taking into account any relevant event in the upcoming week. Nordic RCC collects the information and facilitates the meeting with the objective of making all the TSOs aware of the upcoming operational situation of the region.

The **DOPT** allows enhanced coordination in case any preventive actions need to be taken to ensure the energy supply in the region.

FIGURE 8: Timing of WOPT and DOPT

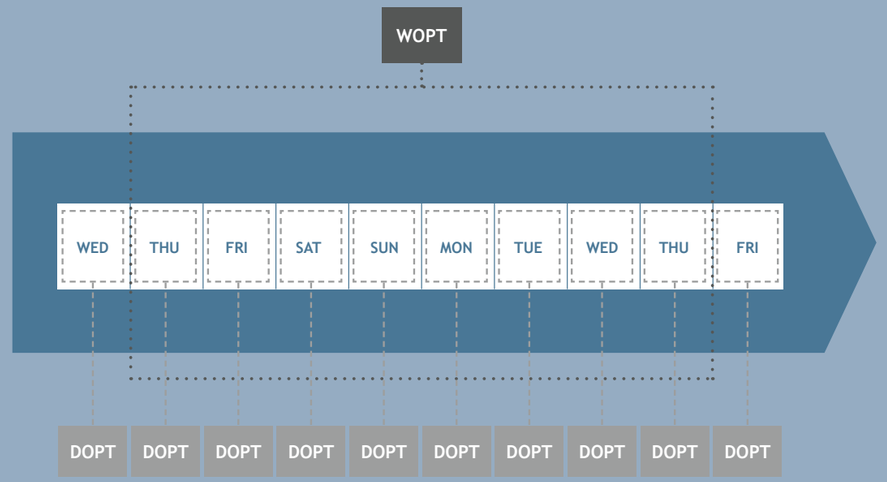
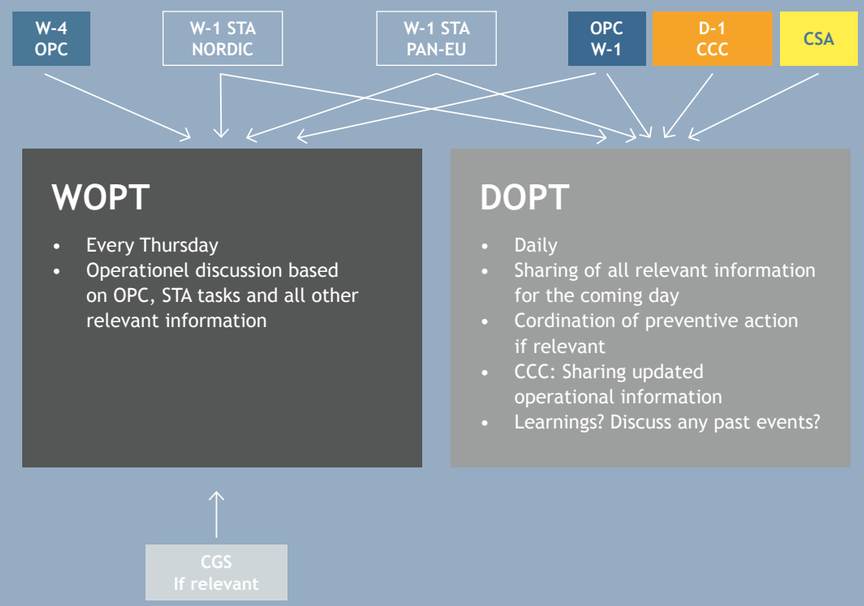


FIGURE 9: Agenda for WOPT and DOPT



COORDINATED CAPACITY CALCULATION (CCC) ARTICLE 37.1 (a)

CCR NORDIC

Task description

Today, Nordic TSOs calculate the Net Transfer Capacity (NTC) values which are available for trade across borders on the so-called interconnectors. In the future, the calculation will be based on the flow-based methodology according to CCR Nordic Capacity Calculation Methodology (CCM). The flow-based calculation is expected to utilize more transmission capacity and produce efficient market results. Furthermore, the flow-based methodology provides a direct physical link between the grid and capacity allocation which aims to reduce countertrade and increase market transparency.

Implementation status

The Coordinated Capacity Calculation (CCC) task has been implemented by Nordic RCC step by step, with the target solution being flow-based (FB) capacity calculation performed by Nordic RCC as described above.

Today, the Nordic TSOs calculate the NTC values while Nordic RCC coordinates and delivers the day-ahead (DA) capacities as well as facilitates the verification process by TSOs. Nordic RCC also performs an automatic verification process of DA market results with regards to expected flows in the Nordic region. If verification fails, the relevant TSO operators are notified.

The above process is called the CCC1c process. Nordic RCC ensures that the process is aligned between the TSOs and towards NEMOs which is a good basis for changing to the FB capacity calculation. With FB, Nordic RCC will continue to deliver capacities to NEMOs and facilitate the verification process of DA flows.

For intraday capacities, Available Transmission Capacity (ATC) values for intraday gate opening will be extracted from the calculated DA FB domain and DA flows and sent to NEMOs after verification by TSOs.

External Parallel Run (EPR)[8]

The day-ahead flow-based capacity calculation is running as a daily process in parallel with the current NTC as a part of the EPR. The EPR was launched to give the market participants the opportunity to learn how the FB method works and to allow a comparison of FB method market results with the current NTC method market results.

On 12 June 2023, the Nordic TSOs delivered the EPR evaluation report[9] to Nordic NRAs as a condition from the Nordic CCM. The report included KPIs reflecting the functionality of the FB calculation. During the 3-month reporting period, all KPI criteria were met and no fallbacks or delays were observed related to the DA FB capacity calculation process. Moreover, market simulations of the results of the EPR show that the FB capacity calculation methodology provides a higher socio-economic welfare (SEW) compared to the current NTC method.

On 12 July 2023, Nordic NRAs stated that in the EPR, the Nordic TSOs have demonstrated that the FB capacity calculation works sufficient in operational terms, given the current state of development[10]. NRAs also mentioned open issues still to be investigated in the following 6 months' EPR.

The FB domain is published daily on the JAO (Joint Application Office) Publication Tool[11] and weekly market reports are published on the Nordic RCC webpage[12].

The expected go-live date of DA FB capacity calculation is October 2024.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (a)
- Regulation (EU) 2015/1222 on Capacity Allocation and Congestion Management
- Nordic Capacity Calculation Region capacity calculation methodology[6]
- Regulation (EU) 2016/1719 on Forward Capacity Allocation, sections 2 & 4
- Long-term capacity calculation methodology of the Nordic capacity calculation region[7]

Outcome of monitoring

Operational performance

In line with the NRAs' requirements for the EPR reporting, Nordic RCC is monitoring a KPI for fallback/backup FB domains of 3% or less. Therefore, the target level of successful calculations of a daily FB domain in the EPR is consequently at 97%. This metric is used as an indicator of performance of the FB capacity calculation in the EPR stage.

The monthly performance of the daily flow-based capacity calculation can be seen in figure 10 (page 54).

CCC FB

Figure 10 shows the percentage of successful runs of the FB process resulting in a valid FB domain within the defined deadlines for the day-ahead timeframe.

The 97% target level, which corresponds to 3% back-up usages, is illustrated in the figure with an orange line.

The target level has been met for all months in 2023 except March, where a back-up FB domain was used two days in a row because a model update conflicted with a temporary fix.

6 https://nordic-rcc.net/wp-content/uploads/2024/01/CACM-Nordic-CCR-DA-and-ID-CCM-2020-1.pdf

7 https://nordic-rcc.net/wp-content/uploads/2024/01/FCA-Nordic-CCR-LT-CCM-2019-1.pdf

8 Market reports and information on EPR progress are available at https://nordic-rsc.net/flow-based/simulation-results/

9 https://nordic-rcc.net/wp-content/uploads/2023/06/Parallel-run-report_final_public.pdf

10 https://www.nordicenergyregulators.org/2023/07/nra-communication-regarding-the-tsos-june-2023-epr-report/

11 https://test-publicationtool.jao.eu/nordic

12 https://nordic-rcc.net/flow-based/simulation-results/

Overall, the stability of the FB process has improved in 2023. Figure 11 shows the timing of the daily publication of the DA FB domain before a specific time. The Nordic RCC deadline for publication is 09:30. On average the first publication deadline was reached in 96.40% of the 365 days. Updates to the domain can be published until 10:00 and in exceptional cases until 11:00. During the EPR, the timing of publication has been within the agreed deadlines.

The single late publication at 12:00 on 9 October 2023 was due to a file transfer issue to the publication platform.

The total FB domains published in 2023 is 372 (more than 365) which is due to the fact that for 7 days, the FB domain was updated and republished. This situation occurs if additional or updated input data is provided that improves the FB domain quality.

FIGURE 10: Successful day-ahead flow-based domain calculations

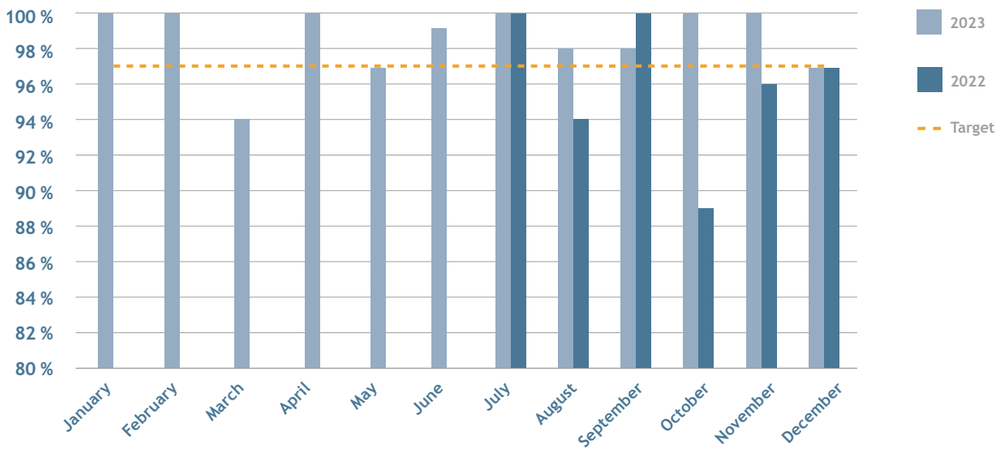
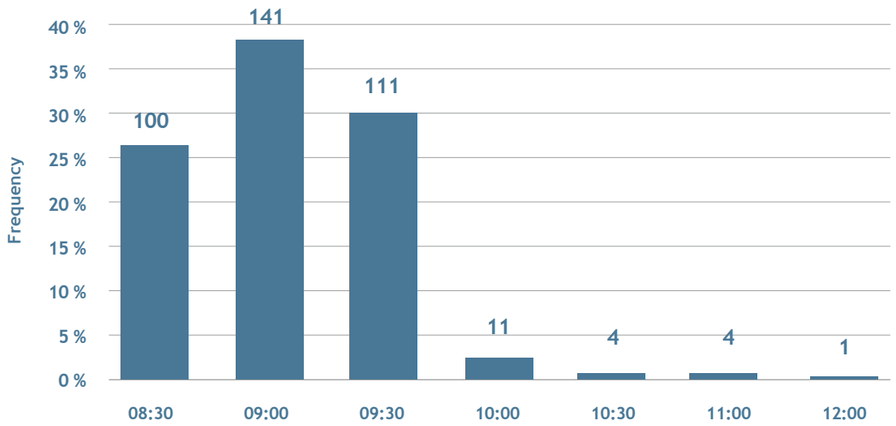


FIGURE11: Publication time of FB domains in 2023



CCC1c

The CCC1c process is described on page 52 (in the implementation status). Figure 12 shows the percentage of a successful CCC1c processes on a monthly basis.

The Nordic RCC target level for the CCC1c operational performance is 100%. This means that the Nordic RCC should be sending NTC values from the TSOs to NEMOs every day without exception. The target level has been met for all months in 2023 as shown in figure 12.

On 11 October 2023, an Incident Committee was triggered due to a directional misalignment for Last Hour Flow (LHF) value in the in the validation process. The direction was clarified and with an LHF value of 0 it had no impact on capacities.

Coordinated actions and the extent to which they are implemented by the TSOs

No coordinated actions have been issued in 2023. Currently, Nordic RCC only coordinates, delivers, and verifies DA capacities. The calculation is made by the TSOs, and no coordinated actions are issued.

From go-live of the FB capacity calculation, Nordic RCC will issue coordinated actions and monitor and report their implementation.

Effectiveness and efficiency

Effectiveness and efficiency are not being meaningfully monitored at the current stage of the task. Once go-live of the FB capacity calculation has taken place and more experience gained, additional KPIs on effectiveness and efficiency can be defined, monitored, and reported on.

Future outlook

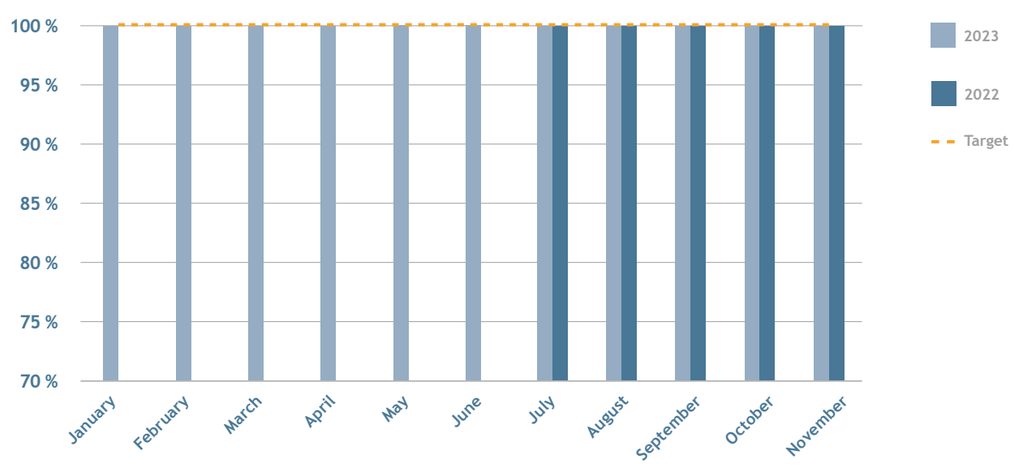
The DA FB capacity calculation awaits the last testing towards NEMOs. The go-live of the task is expected in October 2024.

Intraday (ID) capacities for gate opening will be extracted from the DA FB parameters once DA FB capacity calculation goes live. The full ID FB capacity calculation is expected to be implemented when the European Cross-Border Intraday (XBID) solution can handle FB values.

The CCM for Long-Term FB Capacity Calculation (LTCC) requires that within 12 months after go-live with the DA FB capacity calculation, the LTCC will be introduced, providing FB domains for Y-1 and M-1 timeframes.

Further calculations planned for development in Nordic RCC are the Reliability Margins Calculation and the Fmax calculation – both of which are input to the DA FB calculation and will improve the results (read more under Additional Tasks on page 91).

FIGURE 12: Successful CCC1c processes



COORDINATED CAPACITY CALCULATION (CCC) ARTICLE 37.1 (a)

CCR HANSA

Task description

In cooperation with TSCNET, Nordic RCC also performs the CCC task for CCR Hansa. This region consists of the interconnectors from CCR Nordic to Core CCR (Central Europe). In practice, Nordic RCC delivers the CCC task for the interconnectors at the Swedish-Polish border and the Eastern Danish-German border (DK2-DE). In the future, Nordic RCC will also provide the CCC task to the interconnector at the Swedish-German border (owned by Baltic Cable AB).

The methodology for calculating capacities in CCR Hansa is based on the coordinated NTC.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (a)
- Regulation (EU) 2015/1222 on Capacity Allocation and Congestion Management
- Coordinated Capacity Calculation Methodology for CCR Hansa[13]
- Regulation (EU) 2016/1719 on Forward Capacity Allocation, sections 2 & 4

Outcome of monitoring

Operational performance
Currently the CCC1c task described for the Nordic CCR also includes relevant Hansa borders and performance is shown in figure 12 above.

Coordinated actions and the extent to which they are implemented by the TSOs
No coordinated actions have been issued in 2023.

Effectiveness and efficiency
Effectiveness and efficiency are not being meaningfully monitored at the current stage of the task. The current task performance of CCC1c is running efficient as an integrated part of the same task for the Nordic CCR.

Future outlook

The next phases of the Hansa CCM implementation are currently replanned by Hansa TSOs, and relevant RCCs (TSCNET and Nordic RCC).

[13] https://acer.europa.eu/sites/default/files/documents/en/Electricity/MARKET-CODES/CAPACITY-ALLOCATION-AND-CONGESTION-MANAGEMENT/16%20CCM/Action%2016a%20-%20CCM%20Hansa%20DA+ID%20approved%20TCM.pdf

COORDINATED SECURITY ANALYSIS (CSA) ARTICLE 37.1 (b)

Task description

The purpose of the CSA task is to identify operational security risks in advance and recommend optimal remedial actions to the TSOs, while ensuring clear communication and coordination among all affected parties.

The possibility to highlight and visualize operational security risks in advance gives the TSO operators additional time to prepare and investigate possibly needed remedial actions thus aiding TSO operators during real-time operation.

The target for the CSA task is for the RCC to perform a Remedial Action Optimisation (RAO). Based on options provided by Nordic TSOs, Nordic RCC shall suggest the optimal remedial actions by minimising the expected costs while safeguarding security of supply and operational limits.

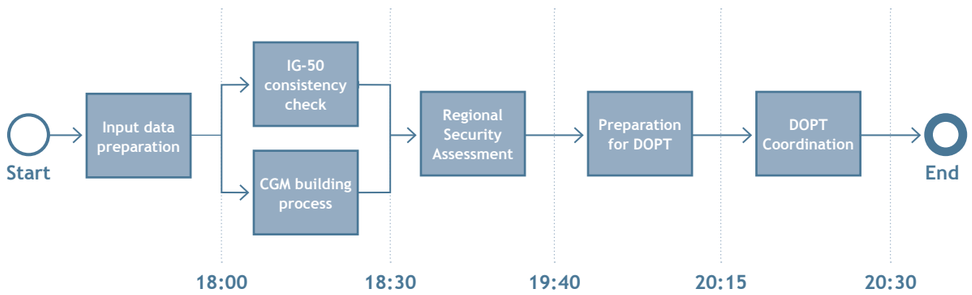
For each CCR, relevant TSOs have further specified a methodology for Regional Operational Security Coordination (ROSC)[17] which Nordic RCC is implementing for CCR Nordic and CCR Hansa.

Implementation status

Nordic RCC is implementing the CSA task in a stepwise approach by releasing versions which will gradually cover the entire scope of the CSA and Nordic ROSC (NROSC) methodologies. CSA version 1.0 is currently being developed, and it aims at delivering the core functionality of performing a N-1 contingency analysis with full AC (Alternating Current) power flow equations on the Nordic CGM. The N-1 contingency analysis is complemented by the inclusion of System Integrity Protection Schemes (SIPS), which are largely adopted in the Nordic power systems and ensure that results reflect the expected real-time operating conditions.

In order to provide value to TSOs, the CSA needs to be completed within the allocated timeslot in the DA operational planning. The diagram in figure 13 shows the various phases in the DA process, starting with the preparation of input data (IGMs as input to the CGM as well as additional data specific for CSA), which TSOs are responsible for submitting no later than 18:00. All the input data must be verified and the IGMs merged in the CGM building process no later than 18:30 for the regional security analysis to be started. Results of the CSA are made available at least 35 minutes before the Daily Operational Planning Teleconference (DOPT), so both the TSO and the RCC operators can prepare for the online call at 20:15, which is intended for discussing any critical aspect arising from the CSA results.

FIGURE 13: Phases in the DA CSA process



2023 - a transitional year

Between 2022 and 2023, a 10-months trial period showed critical quality issues in the data models, inadequate computational power, and the need for better visualisation of the results. As these factors prevented the service from being fully operational, one of the focus areas during 2023 has been the collection of specific go-live criteria for ensuring minimum quality standards in the implementation of the task. These criteria cover various aspects of the task, ranging from business aspects of the process to stricter computational requirements that allow the results to be calculated in due time. The collection of go-live criteria has been completed successfully with the approval by all four Nordic TSOs and a new go-live date established in Q3 2024.

At the end of 2023, an important milestone was reached by Nordic RCC, as the upgraded IT infrastructure allowed for a much faster execution of the CSA analysis. Consequently, it is now possible to perform 24 calculations in parallel, meaning that all Market Time Units (MTUs) can be analysed at the same time. Figure 14 shows the recorded runtime of the CSA considering each MTU of two test days. Due to the parallel setup, the total runtime is simply determined by the slowest MTU, and therefore the total expected runtime is approximately 12 minutes, thus marking a significant improvement to the previous performance.

The increase in computation performance will also allow the execution of RAO in the future, ensuring that the entire process is completed according to the predefined timings in the CSA methodology.

CCR Hansa

A separate ROSC methodology has been developed and approved for the CCR Hansa. The implementation is foreseen once the full scope of the CSA methodology is in operation in both CCR Nordic and the Core CCR. Together, Nordic RCC and TSC-NET are preparing the implementation of Hansa ROSC.

LEGAL BASIS

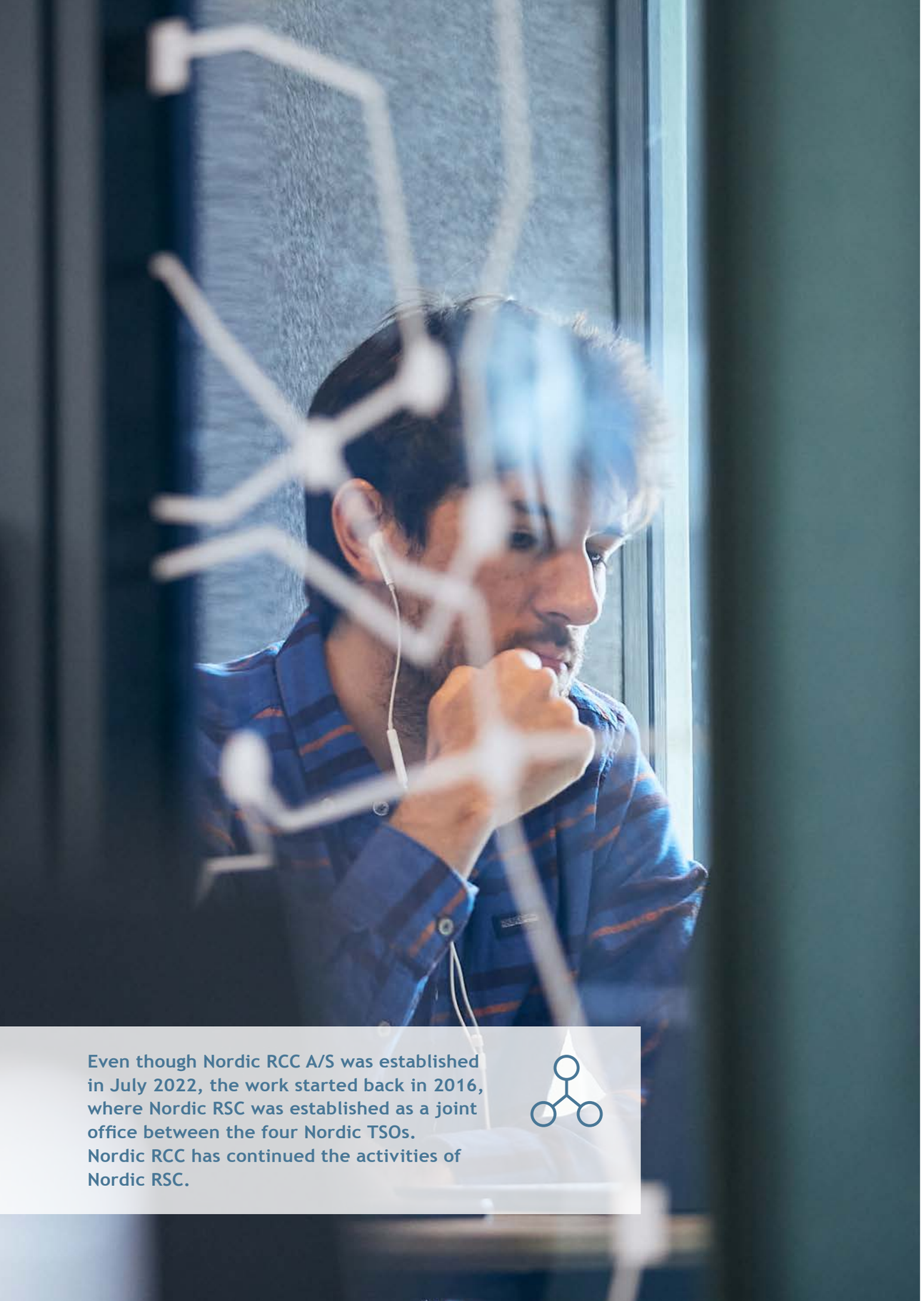
- Regulation (EU) 2019/943, Article 37.1 (b)
- Regulation (EU) 2017/1485 on Electricity Transmission System Operation, Article 76 and 78,
- Methodology for coordinating operational security analysis - ACER decision 07-2021[14]
- Nordic methodology for Regional Operational Security Coordination (NROSC)[15]
- Hansa methodology for Regional Operational Security Coordination (ROSC)[16]

[14] https://www.acer.europa.eu/sites/default/files/documents/Individual%20Decisions_annex/ACER%20Decision%2007-2021%20on%20the%20Amendment%20of%20the%20Methodology%20for%20Coordinating%20Operational%20Security%20Analysis%20-%20Annex%20I_0.pdf

[15] https://eepublicdownloads.entsoe.eu/clean-documents/Network%20codes%20documents/Implementation/sys/4.a.180710_Methodology_for_coordinating_operational_security_analysis.pdf

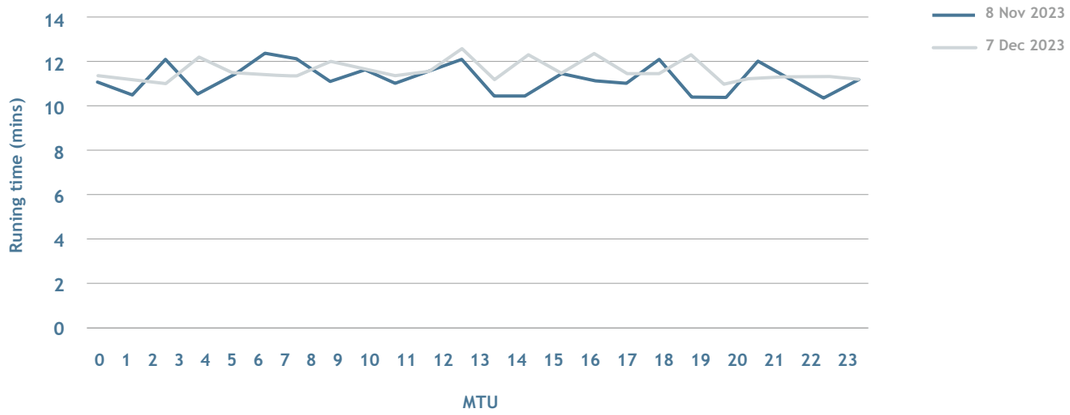
[16] https://afg.forsyningstilsynet.dk/h/42c520c9-70bc-4643-93f3-3f63bb755d28/3e3fd47612ce43c898f3c8feb26879e9?showExact=true

[17] https://eepublicdownloads.entsoe.eu/clean-documents/Network%20codes%20documents/Implementation/sys/4.a.180710_Methodology_for_coordinating_operational_security_analysis.pdf



Even though Nordic RCC A/S was established in July 2022, the work started back in 2016, where Nordic RSC was established as a joint office between the four Nordic TSOs. Nordic RCC has continued the activities of Nordic RSC.

FIGURE 14: Recorded runtime for the CSA analysis for each MTU on two test days



Outcome of monitoring

Operational performance

No operational performance has been monitored in 2023. The trial operation of CSA has been discontinued in early 2023. Hence, there are no meaningful monitoring results for 2023.

Coordinated actions and the extent to which they are implemented by the TSOs

No coordinated actions have been issued in 2023. CSA version 1.0 is still under development.

Effectiveness and efficiency

Effectiveness and efficiency are not being meaningfully monitored at the current stage of the task. The CSA task is still under development.

Future outlook

The plan for the CSA is to focus on the implementation of the Nordic ROSC with full RAO, including both DA and ID time horizons. To achieve this, a Nordic RAO methodology needs to be developed to ensure that the implemented approach provides value for the Nordic TSOs.

The first version of the reworked DA CSA task is currently planned to be in operation from Q3 2024.

CSA task will be extended to the ID timeframe in 2025. RAO implementation will earliest be in 2025, with an initial focus on DA.

COMMON GRID MODEL (CGM) ARTICLE 37.1 (c)

Task description

The main purpose of the CGM task is to provide a common data model representing the power system in the Nordic and Pan-European area, which can be used for performing further analysis through the tasks performed by Nordic RCC to ensure maximum capacity for the power market and secure grid operations. The value of the CGM task is the creation of a single grid model representing the whole Pan-European region which can be used by other services to increase the security or efficiency of the grid. The CGM represents a detailed overview of the electricity grid across borders that would not otherwise be available to the Nordic TSOs.

The CGMs are created for different time horizons from a near real time representation of the grid, to one and two days ahead, and all the way up to year ahead models. Additionally, in the Nordics, the aim is to make observed state (OS) (or 'real-time') CGMs, representing the real time situation as it occurred, to be used in analysis afterwards (for reliability margin calculation, for capacity calculation, as well as to conduct investigations of data quality). The different time horizons have different purposes and provide input data for different services as can be seen in Figure 15.

Pan-European CGM

The target for the CGM task, as described in European legislation, is a Pan-European CGM that is created by using individual grid models (IGMs) from all relevant TSOs. The new Common Grid Model Exchange Standard (CGMES) has been created for this purpose.

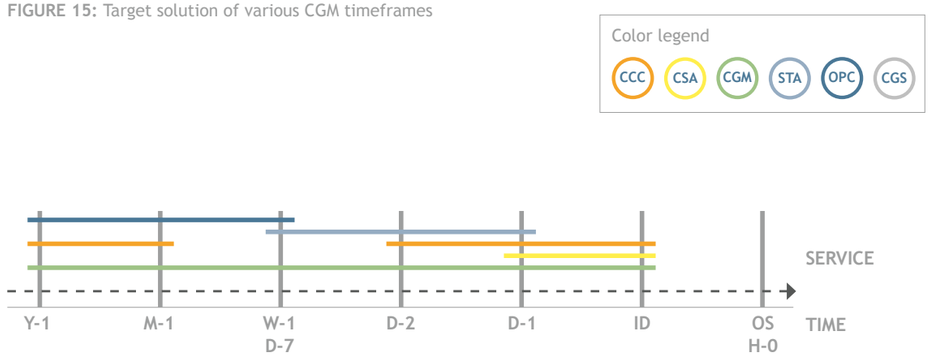
The Pan-European CGM process merges IGMs from all European TSOs into one Pan-European CGM. The systems and rotational principle for merging the CGM went live at the end of 2021. The number of IGMs delivered to the Pan-European process is reported to NRAs and ACER in a report from ENTSO-E twice a year.

As of 2023, Nordic RCC does not participate in the Pan-European process.

Nordic CGM merge

Nordic RCC receives the IGMs for each of the 5 Nordic control areas, Eastern and Western Denmark, Norway, Sweden, and Finland. The IGMs arrive at Nordic RCC, where they are validated to ensure conformity to agreed standards and finally merged into a Nordic CGM. The merged CGM serves as input to the Nordic regional tasks and is provided to Nordic TSOs for internal use.

FIGURE 15: Target solution of various CGM timeframes



[18] https://www.acer.europa.eu/sites/default/files/documents/en/Electricity/MARKET-CODES/FORWARD-CAPACITY-ALLOCATION/05%20CGMM/Action%204%20-%20CGMM%20approval.pdf

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (c)
- Regulation (EU) 2015/1222 on Capacity Allocation and Congestion Management
- Regulation (EU) 2017/1485, Article 81, Articles 104-107
- Regulation (EU) 2017/1485 on Electricity Transmission System Operation, Article 76 and 78
- Regulation (EU) 2016/1719 on Forward Capacity Allocation, Articles 17-22
- Relevant CGM methodologies as decided by ACER, see decision[18 / 19]

CGM Alignment – CGMA and PEVF

The CGMA (CGM Alignment) and PEVF (Pan-European Verification Function) ensure that the IGMs are aligned with each other. This is done for a multitude of time horizons (Y-1, M-1, W-1, D-2, D-1, and ID). To ensure that the IGMs are mergeable, they need to be balanced when combined and have High Voltage Direct Current (HVDC) flows that follow the pre-aligned flow, either forecasted or from the market. The CGM Alignment is divided into the CGMA process and the PEVF process which is used as a basis for different time horizons.

Common Grid Model Alignment (CGMA)

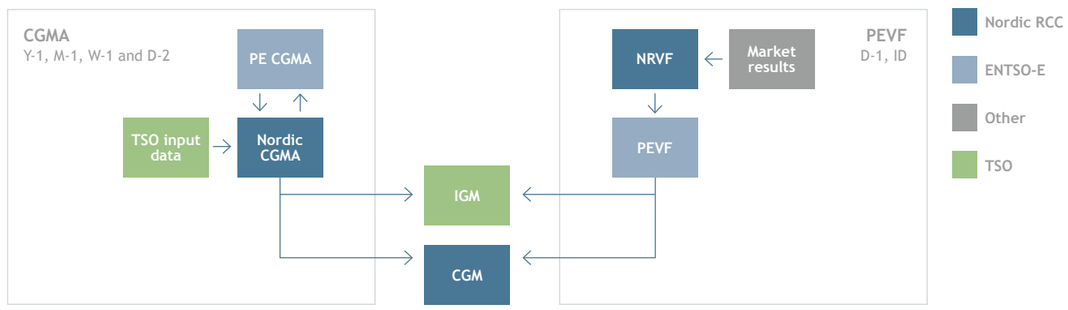
For the D-2 (two day ahead) time horizon and before the market results are available, all IGMs constituting the CGM area are aligned in the CGMA process. The CGMA process ensures that the power flows on the HVDC links and net positions are agreed upon before the creation of the D-2 IGMs. Afterwards, AC tie line flows are calculated based on HVDC links and net positions.

The Nordic power system has distinctive characteristics. Three of the Nordic national transmission systems are divided into Bidding Zones (BZs). The Nordic power system is characterised by a combination of a lot of wind power and hydropower which result in volatile flow directions. Furthermore, the Nordic area is an exception to the European system since it has HVDC links consisting of multiple poles. Due to these distinctive characteristics, the input data in the Nordics is aligned before sending it to the European CGMA, to improve the quality of the results from the European CGMA.

Pan-European Verification Function (PEVF)

For the D-1 (day-ahead) and ID time-horizon, the PEVF data is used to ensure that the IGMs are mergeable. In this time horizon, the market results are available and used as the basis for the alignment.

FIGURE16: CGMA and PEVF process



[19] https://www.acer.europa.eu/sites/default/files/documents/en/Electricity/MARKET-CODES/CAPACITY-ALLOCATION-AND-CONGESTION-MANAGEMENT/14%20CGM/Action%204%20-%20CGM%20NRA%20approval.pdf

Implementation status (CGM, CGMA, PEVF)
The Nordic D-2 CGM process, which is used as input for the D-1 FB capacity calculation process went into operation in the autumn of 2021 and has been operational since. In 2023, Nordic RCC has continuously improved the D-2 IGM and CGM quality. Additionally, D-2 models now contain two new HVDC cables, NorthSeaLink and Viking Link. Earlier, the D-1 CGM process was implemented as a reduced version. In 2023, the D-1 process has undergone different improvements. Nordic RCC is now capturing continuous PEVF file flow from OPDE (Operational Planning Data Environment) and post-processes them into the merging tool. The D-1 CGM process has been established to monitor and improve the quality of D-1 IGMs and PEVF. The D-1 CGM will be used as input for the CSA and CCC tasks.

In 2023 the Y-1 process was performed with a European-aligned CGMA for the first time. The Y-1 CGM is used by the OPC task and in the future also the LTCC. The merging was performed in the same tool that merges the D-1 and D-2 models.

Outcome of monitoring

Operational performance

Unique valid IGMs (figure 17): IGM substitution is the process of replacing one or more of the IGMs received for a specific EDD (Energy Delivery Day) with another, similar IGM from a previous EDD. This is done according to a predefined set of rules. Figure 17 illustrates the percentage of unique IGMs in 2023. 'Average of substituted IGMs for 2023' as an annual average is also shown as a comparison to last year's number. In 2023, IGM substitution happened for 1.71% of all MTUs. This figure is up slightly from 2nd half of 2022, where the number was 0.97%.

This is not necessarily a result of worsening data quality, but rather a consequence of constant tool improvements, where automatic IGM substitution was added as a feature in 2023. The fact that 98.29% of all IGMs received at the Nordic RCC in 2023 were of usable quality (the IGMs that were not substituted) is a testament to the great effort made by the Nordic TSOs over the last years to improve the quality of their IGMs.

Unique merged CGMs (figure 18): This is a new measure Nordic RCC introduced in the Annual Report 2023. It reflects the desired outcome where CGMs are created based only on unique IGMs. Whenever one (or more) IGMs are substituted, no unique CGM is achieved for the respective MTU. In 2023, 92.3% of CGMs were produced without using a single substituted IGM. A number of activities have been initiated in order to increase this number in 2024.

Successfully merged CGMs (figure 19). If IGM substitution fails, sometimes the only option for the operator is to replace the entire CGM for the EDD with a CGM from a previous EDD. This is also done according to a set of predefined rules. Replacing the entire CGM naturally results in reduced quality of the product, why CGM substitution should happen in as few cases as possible. In 2023, the average of substituted CGMs was 1.12% (figure 19). The number has improved since last year, when for the 2nd half of 2022 the number was 2.63%, indicating that the quality of the process is increasing.

Y-1

The Y-1 process was performed for 10 different scenarios. In 2023 the process was done manually and was successful for 7 out of 10 scenarios.

This has been identified as a shortcoming and will be mentioned in the 'Shortcomings' section on page 94.

FIGURE 17: Unique valid IGMs sent from Nordic TSOs to Nordic RCC and validated in RCC merging tool.

Average of substituted IGMs for 2023
1.71%
(0.97% in H2 of 2022)

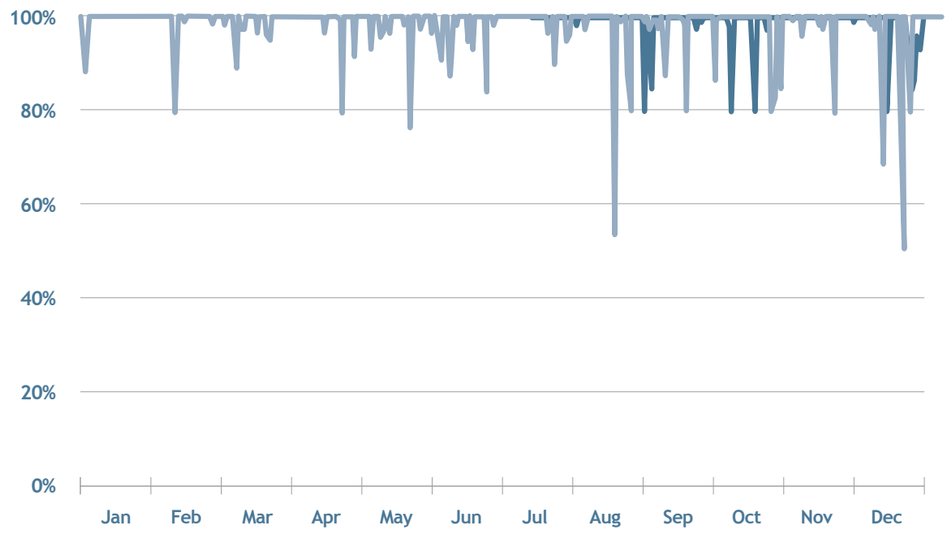


FIGURE 18: Unique merged CGMs using unique IGMs sent by TSOs.

Average of unique CGMs for 2023
92.3%

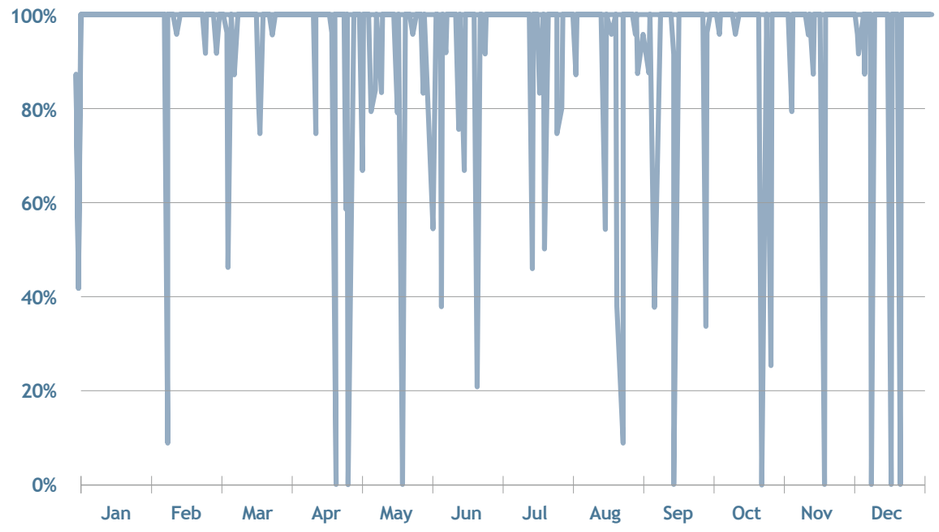
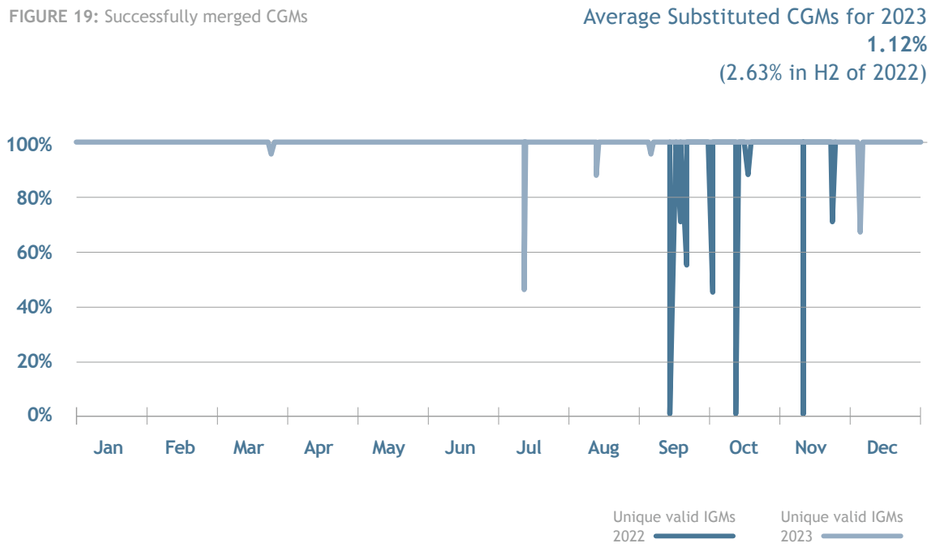


FIGURE 19: Successfully merged CGMs



Recommendations and the extent to which they are implemented by the TSOs

No coordinated recommendations have been issued in 2023. The CGM task and its results do not lead to any recommendations for TSOs. Merged CGMs (regional or Pan-European) are input to other services, but not an instruction of any kind for the TSOs.

Effectiveness and efficiency

Effectiveness and efficiency are not being meaningfully monitored at the current stage of the task. Insights on effectiveness and efficiency are to be expected when more operational experience is gained.

In the development phase significant resources had to be used to ensure a high standard of data quality. The TSOs and Nordic RCC have gained valuable experience in creating and merging CGMES based IGMs.

Future outlook

In 2024, the Nordic CGM process will take D-1 CGM into operation in order to start delivering D-1 CGM to the CSA process. In addition, the Y-1 CGM process will be automated further in 2024.

The Nordic CGM merge for other timeframes such as OS, ID, and M-1 will be developed in the coming years.

For the Pan-European CGM process, a number of tasks are still outstanding for both the Nordic and European TSOs. The Nordic TSOs can face challenges related to information security when sharing their IGMs outside of the Nordic area.

The Pan-European CGM work is ongoing and progress reported to ACER and NRAs every 6 months.

CONSISTENCY ASSESSMENT OF TSOs' DEFENCE AND RESTORATION PLANS ARTICLE 37.1 (d)

Task description

TSOs design defence and restoration plans according to the Network Code Emergency and Restoration (Regulation EU 2017/2196). In the process, the TSOs shall ensure consistency within their corresponding synchronous area and with neighbouring TSOs. In this process, RCCs shall assess the consistency of measures. As a result of the consultation, the relevant RCC shall produce a technical report on the consistency of the TSO measures.

In 2018, Nordic RSC (Regional Security Coordinator) was consulted by the Nordic TSOs and produced a technical report by December 2019.

TSOs shall review their defence and restoration plans at least every five years with a subsequent consistency assessment. In December 2023, a new process has been initiated by European TSOs that will be coordinated in 2024.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (d)
- Regulation (EU) 2017/2196 Network code on emergency and Restoration, article 6

Outcome of monitoring

In 2023, no consistency assessment was done, therefore, no monitoring was performed.

Future outlook

The Nordic RCC will perform a consistency assessment in 2024.

SHORT-TERM ADEQUACY (STA) ARTICLE 37.1 (e)

Task description

The Short-Term Adequacy (STA) task supports the TSOs in the assessment of operational security by analysing the adequacy situation a week ahead of operation. Nordic RCC focuses on the regional ability of supplying the demand under the given regional grid limitations, based on the forecasted load, transmission capacities, and generation capacity. In a constantly evolving grid, with the higher penetration of renewables (such as wind and solar) in the electrical system, the STA service needs to provide a good foundation for the reliability of the operation of the grid.

The STA task is performed every day for the upcoming seven days. If an adequacy situation is identified where the system cannot satisfy the need expected for energy, Nordic RCC facilitates the TSO coordination for the resolution of the conflict.

Implementation Status

From regional to pan-European
Historically, Nordic RCC has provided a Nordic STA task, while participating in the development of the Pan-European task. During 2023, Nordic RCC, in alignment with the Nordic TSOs, agreed to shift focus and priority from the Nordic STA (and related tool) towards the Pan-European STA process, adapting to the procedures that bring the biggest value to the Nordic TSOs.

The STA task in the Nordics has been performed in 2023 with two tools, a regional one (NOA; Nordic Overview of Adequacy) and a Pan-European tool.

The first process covers the Nordic SOR. The region is analysed in detail taking into consideration its own distinctive characteristics (high level of interconnection, high penetration of wind, coordination of outages, and more).

GAS SHORTAGE IN EUROPE

WAR IN UKRAINE

LOW LEVELS OF WATER RESERVOIR IN NORWAY

DELAYS IN OPERATION OF OLKILUOTO 3 NUCLEAR PLANT

STA IN PRACTICE - characteristics of 2023

During 2023, the electrical system experienced new challenges and changes that had a direct impact on the STA task.

The STA process was closely monitored, including the creation of the Winter Operational Group for 2022-2023 at European level, where a weekly call between all European TSOs, RCCs and ENTSO-E took place to analyse the adequacy situation for the upcoming week.

As a reaction to the shortage of gas, the European tool, that analyses the adequacy, was improved to better model the scarcity of resources such as gas, hydro, or coal.

[20] https://www.acer.europa.eu/sites/default/files/documents/Individual%20Decisions_annex/ACER%2520Decision%252008-2020%2520on%2520the%2520RPR8%2520-%2520Annex%2520I_1.pdf

LEGAL BASIS STA

- Regulation (EU) 2019/943, Article 37.1 (e)
- Regulation (EU) 2017/1485 on Electricity Transmission System Operation, Article 81, Articles 104-107
- Methodology for Short-term and Seasonal Adequacy (ACER decision No 08/2020)[20]

The second process is cross-regional (Pan-European) with input from all TSOs and a common tool. The Pan-European process delivers comparable results and enhances the coordination capacity between the Nordic region and the neighbouring zones to achieve the most secure level of operation.

The Nordic tool, NOA, was developed earlier in the Nordic region to provide value quickly to the Nordic TSOs. The Pan-European tool took more time to develop as an industrialised tool but today provides increased value as it includes data from across Europe. This was thus a success case of an agile way of working providing value quickly and acting on lessons learned.

Pan-European Regional Adequacy Assessment - Process

The Pan-European STA process takes place every morning and starts at 09:00 (which is after the Nordic STA process has taken place). The common Pan-European tool receives data from all European TSOs and performs the corresponding calculations before 09:30. At this point, the adequacy situation of Europe can be assessed.

On a rotational basis, the RCCs have the role of Adequacy Assessment Agent (AAA). The AAA informs all RCCs about adequacy situations identified in any European region and triggers further calculations if the TSOs require an update of the data.

After the RCCs have been informed of the adequacy issue, any TSO can trigger the Regional Adequacy Assessment (RAA) process. For this process, the responsible RCC will facilitate coordination among the affected TSO and all regions that are connected to the affected zone.

The performance of the Pan-European task is reported as part of ENTSO-E's regional coordination assessment report[21].

Outcome of monitoring

Operational performance

Figure 20 shows the number of days the Nordic STA process was performed successfully before the deadline at 08:30. The process includes carrying out the Nordic STA calculation and publishing the results to the Nordic TSOs. The unsuccessful cases were caused by different IT issues that were solved after the deadline.

Figure 21 shows the number of days that Nordic RCC successfully sent TSO data to the Pan-European STA tool before the deadline of 09:00. As with figure 20, unsuccessful cases are related to IT issues that were solved after the deadline. The delay in the sending process implies that the data that is used in the calculations is taken from the previous day (D-2 to D-7 from the previous day), which is less accurate, does not contain updates, and misses D-7 in the forecast. As D-2 has acceptable level of quality, it usually portraits the adequacy situation with a high level of confidence. However, the risks of changes in the production or transmission capacities due to outages exist and could be missing in the forecast, leading to a non-identified adequacy issue.

Figure 22 shows the number of days when whole data files were missing from any Nordic TSO. Figures 20 and 21 are indicators of the Nordic RCC process of receiving and sending input from TSOs. Figure 22 shows if any TSO input is missing. Missing input can be due to data creation issues at the TSOs, data delivery to Nordic RCC, or data processing at Nordic RCC.

[21] https://www.entsoe.eu/news/2023/10/04/entso-e-publishes-its-annual-report-on-regional-coordination-assessment-for-the-year-2022/

FIGURE 20: Percentage of days with the Nordic STA process completed before the deadline at 08:30

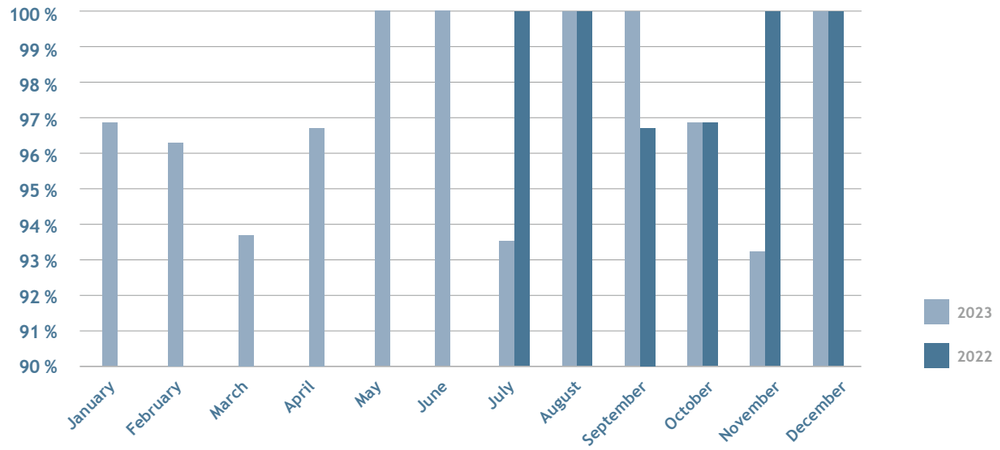


FIGURE 21: Percentage of days Nordic RCC sent TSO data to PE STA tool before the deadline at 09:00

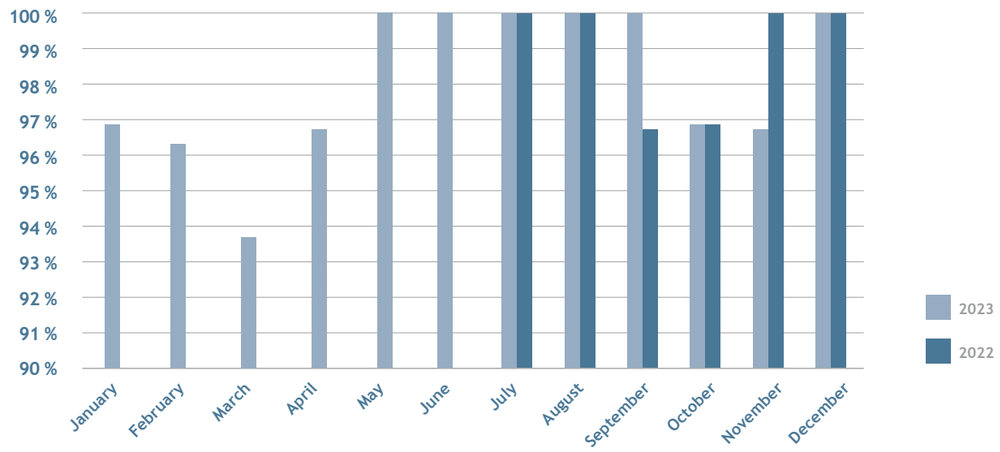


FIGURE 22: Percentage of days with Nordic TSO data files missing

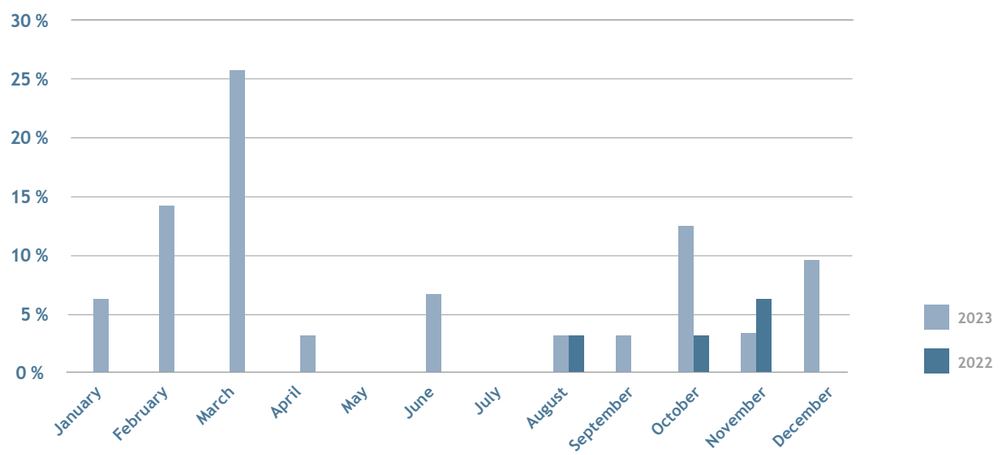


Table 1 has been introduced in 2023 to measure adequacy warnings that were flagged by the tools, but that after analysis from TSOs and RCC proved to be unrealistic or false. Therefore, they did not require any further action from the TSOs or Nordic RCC.

TABLE 1: Number of identified adequacy warnings

Identified warnings	9
Considered “false” warning	9

Recommendations and the extent to which they are implemented by the TSOs

In case of an identified adequacy issue, remedial actions are taken. The TSOs suggest and agree upon the remedial actions which will be most efficient for solving the observed issue, based on the extensive and detailed knowledge of their own grids. The role of Nordic RCC is to support the TSOs, to coordinate the best possible solution with all the involved actors, and to improve and document the process based on the results.

Effectiveness and efficiency

During the operation of 2023, the Pan-European STA tool has identified 9 adequacy situations in the Nordic region. After analysis in collaboration with the relevant TSOs, all the situations were classified as false adequacy issues. The flagging of the risk situations happened due to flawed or missing data, so no remedial actions had to be taken.

Regarding the effectiveness and efficiency of the STA task, Nordic RCC and other RCCs are in dialogue to determine possible ways of defining and monitoring effectiveness and efficiency for the STA task.

Nordic RCC continuously assesses the efficiency of the Nordic and Pan-European processes. Initially, the Nordic process was developed to ensure that the needs of the region were satisfied. However, Nordic RCC constantly evaluates the benefits of having both processes and works to combine them to ensure efficiency.

Future outlook

Nordic RCC and the Nordic TSOs have a clear path to coordinate and enhance communication with the neighbouring regions, as this will increase operational security for all parties. As the service evolves, additional data can be monitored and reported on.

For 2024, the STA Pan-European tool will keep evolving and developing. Among other things, the tool will include the Nordic FB domain for DA transmission capacities, which will improve the accuracy of the results, not only for the Nordic region but for the whole European region.

In 2023, Nordic RCC took on the Nordic Cross-Project Coordination task, uncovering the dependencies and derived consequences of Nordic TSO projects, including the implementation of flow-based capacity calculation, the Nordic Balancing Model (NBM) and 15-minute Market Time Unit (15’ MTU).

OUTAGE PLANNING COORDINATION (OPC) ARTICLE 37.1 (f)

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (f)
- Regulation (EU) 2017/1485 on Electricity Transmission System Operation, Articles 81-103

Task description

The OPC task facilitates the regional and Pan-European OPC processes. Outages can be necessary to maintain assets in the transmission grid, in the construction phase and commissioning of new network elements, for decommissioning of old elements, and when rebuilding existing elements. OPC is at the heart of regional coordination and the first step of coordinated system operation in the Nordic region and in Europe. The value of the OPC task is to provide the TSOs with a baseline for system operation - a coordinated plan of outages for the next year. Possible changes to that baseline are coordinated in the W-4 (four weeks ahead) and W-1 (week-ahead) timeframes.

The Nordic OPC process is agreed and defined in cooperation with the Nordic TSOs, and the Pan-European OPC process is described in the Pan-European OPC Rulebook.

Nordic task

In the regional Nordic process, OPC has the overall goal to optimise the availability of the grid and minimise the impact on security of supply and the market when planning necessary outages.

The Nordic OPC process is carried out prior to the Pan-European process.

The Nordic OPC task works with the time horizons Y-5 (five years ahead), Y-1 (year-ahead), W-4, and W-1.

Y-5 process

Nordic RCC facilitates the sharing of information on upcoming projects and changes in the transmission grid that are expected to impact grid availability on a regional level.

Y-1 process

Nordic RCC coordinates outages on a regional and cross-regional level for the next year. This is the main process of the OPC task and serves as a starting point and benchmark for the next year. The outcome of the process is the creation of the Unavailability Plan (UAP). Outages are coordinated on a regional level using the Nordic IT tool (NOIS, Nordic Operational Information System). The TSOs identify relevant outages with the help of the list of relevant assets updated every year with the support of the RCCs (see Pan-European process).

In the target solution, a Regional Operational Security Analysis based on a Y-1 CGM is done in a structured way with various relevant load and productions scenarios to ensure the optimal availability of the grid and detect any outage planning incompatibilities that might exist.

W-4 and W-1 processes

Outages for the coming week and the coming four weeks are closely coordinated and agreed upon[22]. Any outage planning incompatibilities are solved collectively.

The Nordic W-1 task combines the expected adequacy situation in the Nordic region, the expected operational situation in the Nordic region.

Implementation status

2023 was the first year that Nordic RCC used the Y-1 CGM for Y-1 OPC purposes. Here two scenarios were simulated. The scenarios were defined based on the most challenging situations for the region; low level of production, high load, and high combination of outages. The analysis resulted in no unforeseen outage challenges that needed further coordination.

[22] For further information, see the information on WOPT and DOPT on page 50 and 51.

Pan-European task

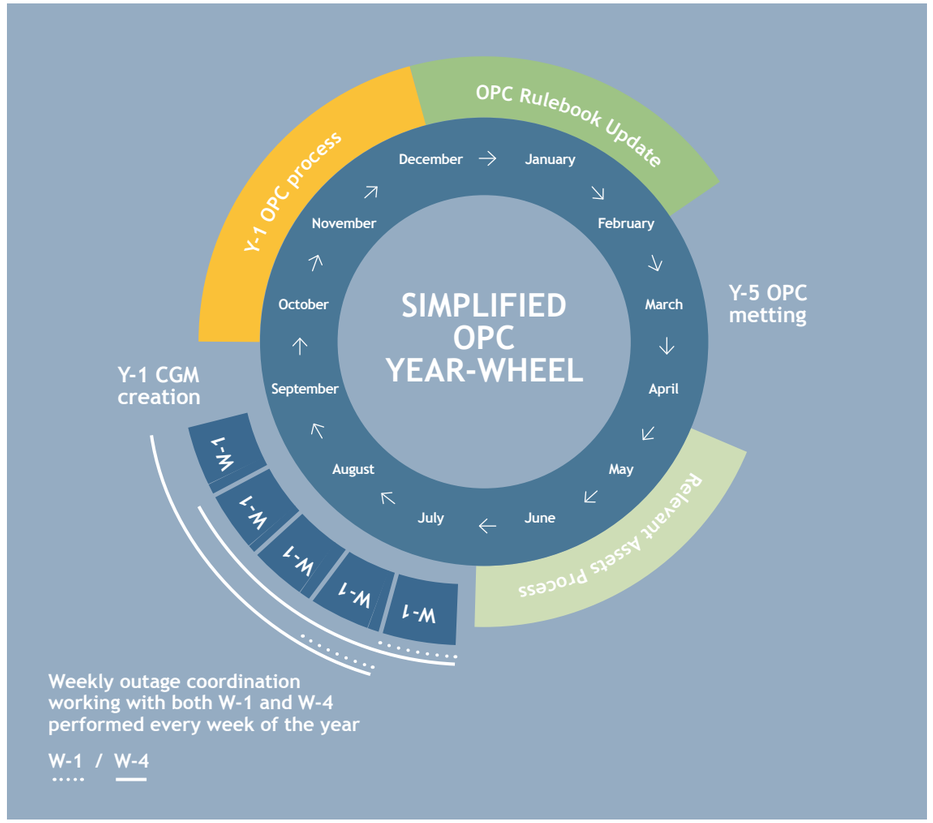
The Pan-European task focuses on three main activities:

- Outage planning coordination for the next year (the process must be finalised no later than 1 December for the coming year)
- Outage planning for the next week (the process must be finalised Friday at 13:00 for the coming week)
- Development and maintenance of Pan-European OPC tool

Status of the Pan-European obligations

Nordic RCC has joined the Pan-European work on a rotational basis as described and agreed in the Pan-European OPC Rulebook and takes part in the work in the Best Practice Task Document.

FIGURE 23: OPC yearly recurring tasks throughout the year



Outcome of monitoring

Reporting on the Pan-European tasks is covered as part of ENTSO-E's Regional Coordination Assessment Report. Below is the reporting of the Nordic task.

Operational performance

In 2023, Nordic RCC facilitated the Y-1 process for 2024, completed on 1 December 2023.

In the yearly process for 2023, the number of outages coordinated for 2024 was 261 in the Nordic region, including outages between the Nordic region and the neighbouring regions. The number of outages has increased due to the further development and strengthening of the grid, in preparation for the green energy transition.

The W-1 and W-4 coordination has been performed on a weekly basis in the WOPT (Weekly Operational Planning Teleconference) calls since the establishment of Nordic RCC.

Recommendations and the extent to which they are implemented by the TSOs

Recommendations in the Nordic OPC process are commonly agreed with the TSOs and are issued mainly in the Y-1 process. A recommendation is typically to perform a further coordination of outages which can lead to an action of for example the replanning of a specific outage.

In the Nordic region, most of the outages are coordinated among the TSOs before they are uploaded into the local tool and before the weekly process begins, which leads to a limited number of recommendations being provided by Nordic RCC. For the Y-1 process in 2023 for 2024, 18 recommendations were agreed on between Nordic RCC and the Nordic TSOs. How the TSOs followed up on the recommendations can be seen in table 2.

Effectiveness and efficiency

Effectiveness of the OPC process can be defined with parameters like the participation of the TSOs, the transparency of the process and access to tools used, how complicated it is to update the outage plan and the overview of the result when assessing the results of the security analysis. The effectiveness thus depends on regional processes and tools, as well as Pan-European processes and tools.

In recent years of cooperation, both the regional and Pan-European processes have showed to be effective, as outages have been coordinated on time and fitting the grid's needs.

The efficiency of OPC is in principle to have as little impact as possible on the security of supply and the market, ensuring the higher availability of the grid, which is not currently measured.

TABLE 2: TSO follow up on 2023 Y-1 OPC recommendations for 2024

Solution type	Description	Cases	Percentage
A	TSOs followed the recommendation and took action	6	33%
B	TSOs followed the recommendation and concluded on no action	10	56%
C	The Y-1 process did not allow for follow-up on recommendation - TSOs opted to address them bilaterally (conclusion unknown to Nordic RCC)	2	11%

Future outlook

In the future, Nordic RCC will improve the performance of the Regional Operational Security Analysis based on a Y-1 CGM with relevant load and productions scenarios, calculating effects of planned outages. This will continue to be combined with an expert assessment to ensure and increase the availability of the grid and minimise the impact on security of supply and the market.

The definition and monitoring of issued recommendations and their implementation will be further developed.

DID YOU KNOW

The Nordic region has a long history of collaborating across the four Nordic countries. As an example, the Nordic TSOs have coordinated their outages since the mid-1980s - long before it was mandated by regulation to do so.

TRAINING AND CERTIFICATION ARTICLE 37.1 (g)

Task description

On 18 May 2022, ACER approved the RCC Training and Certification of Staff Methodology which states that RCCs must prepare and carry out training and certification programs for all operational staff. According to the methodology, Nordic RCC and its fellow RCCs have until May 2024 to implement a training and certification program, and by May 2026, all operational staff must be certified accordingly.

Implementation status
In 2023, Nordic RCC has begun the development and preparation of certification materials and assessments for each task for the 18 May 2024 go-live for implementation. In combination with this, Nordic RCC also implemented a new online learning management system, Nordic RCC Academy, ensuring easy access to training materials, and for all operators to track their progress and certification status.

One of the strategic initiatives performed in 2023 related to the strengthening of the operations function. Part of the purpose was to ensure competencies are heightened and standardised within the operator team.

In Q4 2023, Nordic RCC became a full-bodied member of the Nordic Training Team (NTT) under the Nordic TSOs' Nordic Operational Group. In the NTT, Nordic RCC participated in the Power Shortage Exercise of 2023 together with the Nordic TSOs. As part of the Power Shortage Exercise, Nordic RCC facilitated knowledge-sharing and collaboration.

As part of the RCC cooperation under the RCC Working Table (RWT), RCCs are developing joint training programs and delivering cross-regional training where relevant.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (g)
- Regional Coordination Centre Training and Certification of Staff Methodology – ACER decision No 07/2022[23]

Outcome of monitoring

The task is still under implementation and no monitoring has been started.

Future outlook

The implementation is going according to plans and in line with the relevant methodology. The training and certification program will be implemented in 2024.

[23] https://www.acer.europa.eu/sites/default/files/documents/Individual%20Decisions_annex/ACER%20Decision%2007-2022%20on%20RCC%20Training%20and%20Certification%20of%20Staff%20Methodology%20-%20Annex%20I_0.pdf

SUPPORT REGIONAL RESTORATION ARTICLE 37.1 (h)

Task description

The task proposal is still under development within ENTSO-E.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (h)

DID YOU KNOW

Nordic cross-zonal capacities are input to the Pan-European Single Day-Ahead Market Couling covering approximately 1.530 TWh per year matching trades with a a daily value of approximately EUR 200 million[24].

[24] https://www.entsoe.eu/network_codes/cacm/implementation/sdac/

POST-OPERATION AND POST-DISTURBANCES ANALYSIS AND REPORTING (RIAR) ARTICLE 37.1 (i)

Task description

On 31 March 2022, ACER approved the post-operation and post-disturbances analysis and reporting methodology.

The RCCs' process to carry out the post-operation and post-disturbances analysis and reporting (also known as Regional Incident Analysis and Reporting; RIAR) interacts with the existing process run by the ENTSO-E Incident Classification Scale (ICS) Expert Panel established for the i nvestigation of incidents on scale 2 and scale 3 in accordance with the ICS Methodology[26]. After the incident threshold of scale 2 or 3 is triggered, a factual and final report shall be prepared by an expert panel.

An RCC Investigation Subgroup is created within the ICS Expert Panel. If the RCC investigation threshold is triggered, a chapter pertaining to RCC activities will be prepared by the RCC subgroup and included in the final report.

Recommendations issued by the RCC subgroup will be tracked in a dedicated database and updated by each RCC for their respective SOR. For the Nordic SOR region, any activities related to this task will be described in the Nordic RCC Annual Report as well as the outcome of monitoring.

The task according to this methodology went live on 1 October 2022.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (i)
- Regional Coordination Centre Post-Operation and Post-Disturbances Analysis and Reporting
- Methodology on RCC Post-Operation and Post-Disturbances Analysis and Reporting - ACER Decision 04/2022[25]

Outcome of monitoring

In 2023, no incidents were concluded to have reached the RCC investigation threshold, and no RCC task has been performed.

However, ENTSO-E and RCCs have investigated two incident cases to determine if the scale 2 or 3 threshold has been reached. In both cases it was concluded that an RCC investigation shall not be triggered.

All RCCs have also worked on developing common training material for the post-operation and post-disturbances analysis and reporting (RIAR) task.

Future outlook

Nordic RCC will do further internal training as well as internal and external RCC coordination to be prepared in case an incident occurs that triggers an RCC investigation.

[25] https://www.acer.europa.eu/sites/default/files/documents/Individual%20Decisions_annex/ACER%20Decision%2004-2022%20on%20the%20RCC%20Post-Operation%20Post-Disturbances%20Methodology%20-%20Annex%20I_0.pdf

[26] https://eepublicdownloads.entsoe.eu/clean-documents/SOC%20documents/Incident_Classification_Scale/200629_Incident_Classification_Scale_Methodology_revised_and_in_use_as_of_2020.pdf

REGIONAL SIZING OF RESERVE CAPACITY & REGIONAL PROCUREMENT OF BALANCING CAPACITY

ARTICLE 37.1 (j) and (k)

Task description

On 21 July 2023, two new methodologies on tasks (j) and (k) were approved by ACER, detailing the RCC's role in supporting the TSOs with Regional Sizing of Reserve Capacity and Regional Procurement of Balancing Capacity.

In parallel to the development of the two new methodologies, the Nordic TSOs have amended their methodology for Frequency Restoration Reserves (FRR) Dimensioning for the Nordic Load Frequency Control (LFC) block, and these amendments were approved by Nordic NRAs in spring 2023.

The Nordic TSOs have started the implementation of the methodology for FRR Dimensioning for the Nordic LFC block prior to the approval of the Regional Sizing and Procurement methodologies. As the three methodologies consider the same processes for FRR, the first step in the implementation of Sizing and Procurement at Nordic RCC has been to perform a detailed comparison of all three methodologies to identify synergies and overlaps.

The purpose of this approach is to identify how Nordic RCC can best support the Nordic TSOs and add value to the FRR Dimensioning for the Nordic LFC block.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (j) and (k)
- Regional Coordination Centre Regional Sizing of Reserve Capacity Methodology, ACER decision 12/2023[27]
- Regional Coordination Centre Regional Procurement of Balancing Capacity Methodology, ACER decision 13/2023[28]

Outcome of monitoring

The task is still under development and no monitoring has been started.

Future outlook

The next step is to review these findings with the Nordic TSOs and together determine how this will translate into practice and implement processes accordingly.

[27] https://www.acer.europa.eu/sites/default/files/documents/Individual%20Decisions_annex/ACER_Decision_12-2023_on_RCC_Sizing-Annex_I.pdf

[28] https://www.acer.europa.eu/sites/default/files/documents/Individual%20Decisions_annex/ACER_Decision_13-2023_on_RCC_Procurement-Annex_I.pdf

The colleagues at Nordic RCC often come up with initiatives to create an engaging social life. This includes a food club, a book club, a football club, and more. In the office, employees also initiate small office games with many participating colleagues to bring some additional energy to the work day.

SUPPORT INTER-TSO SETTLEMENTS ARTICLE 37.1 (l)

Task description

This task is relevant for RCCs in case TSOs of a CCR request this task. In case of a request, RCCs will have a role in the cost sharing calculation. Cost sharing in this context is the process of calculating all costs and revenues of redispatching and countertrading actions per bidding zone/TSO, which are eligible for the regional cost sharing process under the cost sharing methodologies per each CCR.

Neither for the Nordic CCR nor the Hansa CCR, this task has been requested by the relevant CCR TSOs. Nordic RCC is at this point not performing the task.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (l)
- ACER decision No 13/2022: Methodology for the Optimisation of Inter-Transmission System Operators Settlements related to Redispatching and Countertarading[29]

[29] https://www.acer.europa.eu/sites/default/files/documents/Individual%20Decisions_annex/ACER%20Decision%2013-2022%20on%20RCC%20inter-TSO%20settlements%20for%20RDCT%20-%20Annex%20I.pdf

REGIONAL ELECTRICITY CRISIS SCENARIOS ARTICLE 37.1 (m)

Task description

There is a defined role of RCCs in ENTSO-E's process of identifying regional crisis scenarios. This role is described in the risk preparedness regulation and further elaborated in the methodology for identifying regional electricity crisis scenarios, which in 2023 has been amended by ENTSO-E and RCCs and has been submitted to ACER.

ENTSO-E has not developed a dedicated task proposal pursuant to Article 6(1) of Regulation (EU) 2019/941 (Risk preparedness regulation) and article 37.1(m) of regulation EU 2019/943, where ENTSO-E may delegate tasks relating to the identification of regional electricity crisis scenarios to the RCCs.

Implementation status

ENTSO-E has developed regional electricity crisis scenarios in cooperation with RSCs (RCCs' predecessors) in 2020. In 2023, there was no update of regional electricity crisis scenarios. Regional crisis scenarios are expected to be updated in 2024 with RCCs being involved in line with the amended methodology.

In 2023, ENTSO-E and RCCs have used the experiences of the 2020 process to amend the methodology, perform a public consultation, and have dialogue with stakeholders such as the Electricity Coordination Group (ECG) and have submitted the proposal to ACER.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (m)
- Regulation (EU) 2019/941 (Risk preparedness regulation), Article 6(1)
- Methodology for identifying regional electricity crisis scenarios[30]

Future outlook

The next process for identification of regional electricity crisis scenarios has been initiated end of 2023 and will be finalised in 2024.

Outcome of monitoring

This task has not been performed in 2023 and there has been no monitoring.

[30] https://www.acer.europa.eu/news-and-events/news/acer-reviews-methodology-identifying-regional-electricity-crisis-scenarios

SEASONAL ADEQUACY ASSESSMENTS ARTICLE 37.1 (n)

Task description

European TSOs have decided not to request this task of RCCs for the time being, and no task proposal has been developed by ENTSO-E.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (n)

DID YOU KNOW

The Cooperation Committee supports the development and improvement of tasks as the 'customer voice'. The Cooperation Committee has 8 planned meetings annually, 4 physical full day meetings and 4 half-day online meetings. Part of the work of the Cooperation Committee is to help make realistic business plans and request value-adding additional tasks.

MAXIMUM ENTRY CAPACITY (MEC) ARTICLE 37.1 (o)

Task description

Maximum Entry Capacity (MEC) is the maximum allowed foreign capacity (expressed in MW) of a given capacity market border that can participate in a Capacity Mechanism (CM) during a certain delivery period. The MEC should reflect the value that an interconnected system brings in terms of security of supply. Another formulation is to measure the 'amount of available MW' that the considered bidding zone can be provided with, by the interconnection of a system, in times of 'system stress/scarcity'.

RCCs calculate MEC for each CM separately and issues recommendations per each CM to TSOs where the CM is located. MEC is calculated on an annual basis, meaning that there is a single recommendation per CM per year. The RCC where the Member State (MS) applying the CM is located calculates MEC for all CM borders in this CM.

Performance of the task depends on the result of the ERAA (European Resource Adequacy Assessment) process and related capacity mechanisms. RCCs and TSOs prepare and coordinate implementation within ENTSO-E. The calculation is only performed in the Nordics when CMs open to cross-border participation are implemented.

Individual TSOs delivered input to ENTSO-E in September 2023 in the need for MEC calculations. For the time being, no TSO in the Nordic SOR has indicated the use of a CM with cross-border participation, and the task is therefore not performed by Nordic RCC as of now.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (o)
- ACER Decision No 36/2020 on technical specifications for cross-border participation in capacity mechanisms: Annex I[31]

[31] https://www.acer.europa.eu/sites/default/files/documents/Individual%20Decisions_annex/ACER%20Decision%2036-2020%20on%20XBP%20CM%20-%20Annex%20I%20-%20technical%20specifications_0.pdf

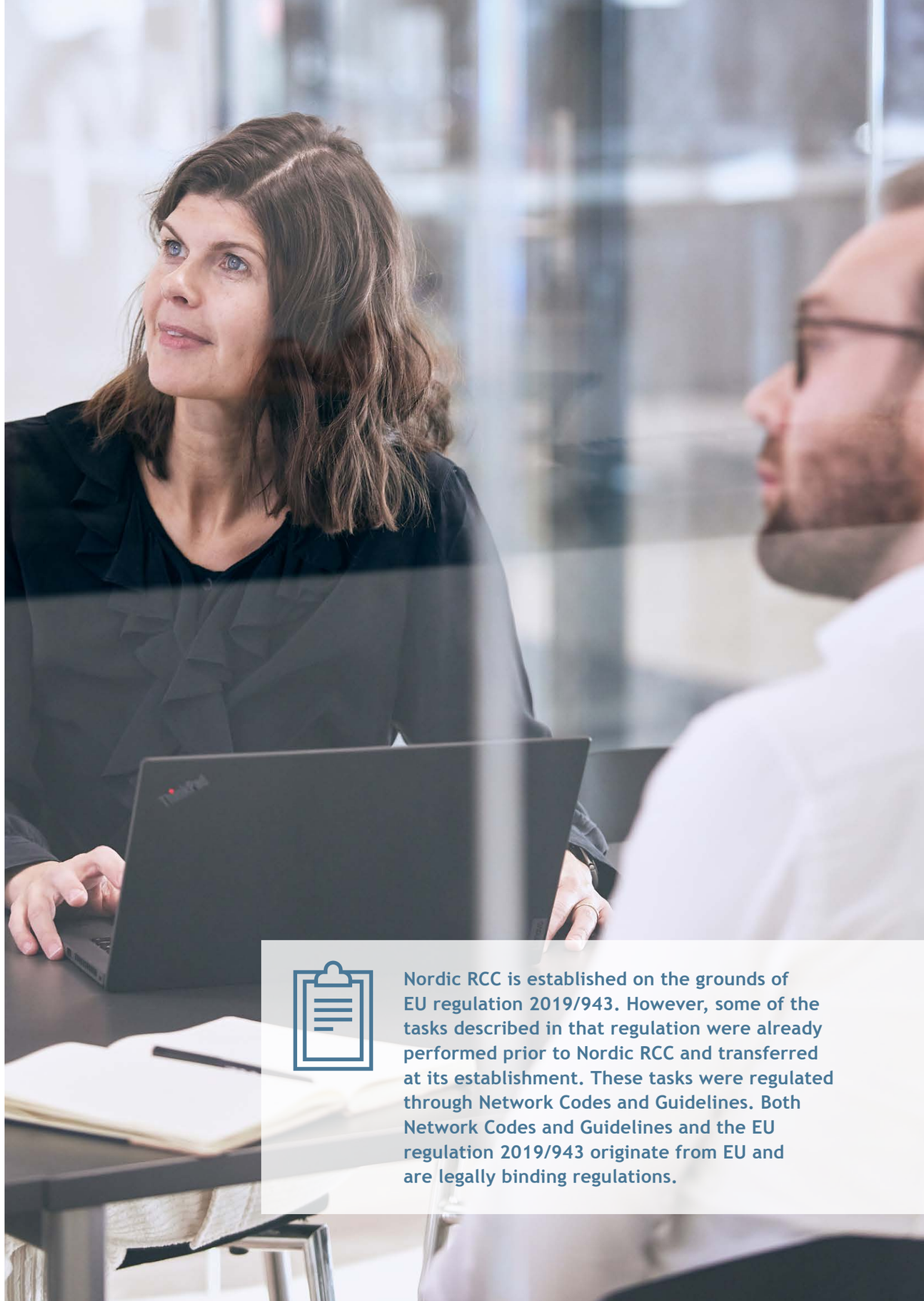
IDENTIFICATION OF SYSTEM NEEDS ARTICLE 37.1 (p)

Task description

The task proposal is still under development within ENTSO-E.

LEGAL BASIS

- Regulation (EU) 2019/943, Article 37.1 (p)



Nordic RCC is established on the grounds of EU regulation 2019/943. However, some of the tasks described in that regulation were already performed prior to Nordic RCC and transferred at its establishment. These tasks were regulated through Network Codes and Guidelines. Both Network Codes and Guidelines and the EU regulation 2019/943 originate from EU and are legally binding regulations.

TASK OVERVIEW FROM REGULATION (EU) 2019/943

TABLE 3: Task overview from Regulation (EU) 2019/943

EU REGULATION 2019/943 ARTICLE 37.1	TASK	METHODOLOGY / PROPOSAL	IMPLEMENTATION STATUS	ADDITIONAL INFORMATION
a	Coordinated Capacity Calculation	Regional methodologies approved	In operation and under further development	Day-ahead go-live expected October 2024
b	Coordinated Security Analysis	Regional and Pan-EU methodologies approved	Under development	CSA V.1 expected go live in Q3 2024
c	Common Grid Model	Methodologies approved	In operation and under further development	Regional CGM for day-ahead is in operation. Regional Y-1 CGM merged in 2023 for the first time
d	Consistency assessment of defence and restoration plans		In operation	First assessment done in 2018 (as RSC) and next assessment planned in 2024
e	Short-Term Adequacy		In operation and under further development	Nordic STA in operation, participation in pan-EU STA
f	Outage Planning Coordination		In operation and under further development	Pan-EU and regional OPC operational
g	Training and certification of staff working for RCCs	Prposal approved by ACER	In operation and under further development	Implementation ongoing
h	Supporting the coordination and optimization of regional restoration as requested by transmission system operators	Proposal under development by ENTSO-E	Not yet started	
i	Carrying out post-operation and post-disturbances analyses and reporting	Proposal approved by ACER	In operation	RCCs are ready for the task and have coordinated amongst each other and are prepared for the process.
j	Regional sizing of reserve capacity	Proposal approved by ACER July 2023	Under development	Nordic alignment on task scope and implementation plan under development
k	Facilitating the regional procurement of balancing capacity	Proposal approved by ACER July 2023	Under development	Nordic alignment on task scope and implementation plan under development
l	Supporting TSOs, at their request, in the optimization of inter-transmission system operators' settlement	Proposal approved by ACER	Not requested by Nordic TSOs	
m	Carrying out tasks related to the identification of regional electricity crisis scenarios if and to the extent they are delegated to the RCCs		In operation	RCCs role under risk preparedness regulation is currently further prepared in amended methodology
n	Carrying out tasks related to the identification of regional electricity crisis scenarios if and to the extent they are delegated to the RCCs	Task not requested by TSOs/ ENTSO-E at the moment. No proposal development so farr	Not requested by Nordic TSOs	
o	Calculating the value for the maximum entry capacity available for participation of foreign capacity in capacity mechanisms	Proposal approved by ACER	Not requested by Nordic TSOs	
p	Carrying out tasks related to supporting TSOs in the identification of needs for new transmission capacity, for upgrade of existing transmission capacity or their alternatives	Proposal under development by ENTSO-E	Not yet started	

ADDITIONAL TASKS

In addition to the tasks laid down in Article 37.1 of Regulation (EU) 2019/943, Nordic RCC may also perform other tasks which are agreed with the Nordic TSOs and where Nordic RCC's position in the value chain and its competences can bring additional value. These tasks are referred to as additional tasks. The additional tasks may be tasks that TSOs are legally required to ensure are carried out or other valuable tasks that the TSOs perform as part of their business.

In order for Nordic RCC to take on an additional task, the Cooperation Committee has to make a recommendation for an additional task to be performed by Nordic RCC. Following such recommendation, Nordic RCC's Board of Directors will review the recommended tasks and whether this is within the scope of Nordic RCC and ensure that it will not conflict with any development or performance of Nordic RCC's legally mandatory tasks. If approved by Nordic RCC's Board of Directors, an agreement for the additional task is sent for approval and signature with Nordic RCC and the Nordic TSOs.

Below is a description of the additional tasks the Nordic RCC performs, including the most recent ones which were agreed upon in 2023.

Nordic Cross-Project Coordination

The Nordic Cross-Project Coordination function has been requested from the Nordic TSOs in 2022, where the role has originally been contracted by Nordic RCC through Energinet. In 2023, the task was approved as an additional task of Nordic RCC.

The scope of the work is to first create an overview of the project landscape, the dependencies, and the preferred or required order of implementation. Further, the Nordic Cross-Project Coordinator is expected to set up the cross-project coordination way of working with suggested processes.

The Nordic Cross-Project Coordination is to act as an anchor point between project entities, where it creates overview of deliveries and provides reporting across relevant managerial levels in the Nordic project environment.

Critical Grid Situation (CGS)

CGS is a task that originates from an ENTSO-E decision of September 2017.

TSOs can trigger the CGS task when a critical situation occurs, or is expected to occur, which cannot be solved solely at national level and cannot be solved by normal available remedial actions.

After initiation, the relevant RCC facilitates regional or cross-regional coordination. The core of the CGS process is facilitation and support of exchange of information among relevant TSOs and relevant RCCs. Regular meetings are organised, and relevant data and analysis are shared in order to get a clearer picture of the situation and of possible mitigating actions.

When triggered, the CGS task acts as a link between long-term processes, such as the OPC Y-1 process, and short-term processes, such as the W-1 STA and W-1 OPC. CGS processes depend heavily on the specific situation. The time horizon spans from 3 months ahead until a few days ahead.

In the Nordic Region, the TSOs have a general proactive approach to CGS, using the CGS task to avoid a potentially critical situation. Since the introduction of the CGS task, Nordic RCC has participated in 3 Nordic CGS processes.

Even though 2023 has been a year with extraordinary challenges for the Nordic and European electricity grid, no CGS has been triggered. Instead, a Weekly Operational Group has been established with participants from all TSOs and RCCs. This had a similar function as a CGS process.

In 2023, European RCCs have worked together to better align the cross-regional CGS processes, if triggered. The main focus is common Pan-European training for CGS on at least yearly basis. A common European training was done in 2023. As the CGS process is mainly an information exchange process, the focus is as well to ensure platforms for sharing information on cross-regional level in an unusual expected strained operational situation.

After each completed CGS process, the RCCs document the process and produce a report that is sent to ENTSO-E.

TABLE 4: Overview of number of times a CGS has been triggered per year

2017	2018	2019	2020	2021	2022	2023
-	-	-	2	1	0	0

Relevant Assets Calculation

The calculation of the Relevant Assets is described in Regulation (EU) 2017/1485 (SOGL), Articles 84-88. It is a TSO responsibility to assess and re-assess the list of Relevant Assets.

The purpose of the task is to do a Nordic regional calculation of the Relevant Assets. These are transmission or distribution system elements that take part in the Nordic regional outage coordination process since their availability status affects other TSOs grid operation. The results obtained will complement the expert-based assessment of these elements with a calculation that can quantify the electrical changes on grid elements due to outages outside of each TSOs control area. The merge of the lists resulting from the expert-based assessment and the calculation will integrate the updated list of Relevant Assets for Outage Coordination to be published by 1st of July.

In 2023, Nordic TSOs and Nordic RCC agreed for this task to be performed by Nordic RCC as an additional task, and it is now in the process of being implemented in Nordic RCC.

Reliability Margins Calculation

Reliability Margin Calculation is a TSO requirement according to the Nordic CCM. CCM Article 3 states that the calculation of reliability margins based on statistical analysis is a mandatory task for Nordic TSOs. The CCM further requires TSOs to store differences between realised and expected flows in a database. Information of the expected flows will be available at Nordic RCC in the form of D-2, D-1, and ID CGMs. Information on realised flows will be available at Nordic RCC in the form of OS IGMs.

In 2023, Nordic TSOs and Nordic RCC agreed for this task to be performed by Nordic RCC as an additional task, and it is now in the process of being implemented in Nordic RCC.

SHORTCOMINGS

RCCs are obliged to report any shortcomings that they identify in the monitoring process[32] to the ENTSO-E, NRAs in the SOR, ACER, and other competent authorities of Member States.

Nordic RCC and the relevant TSOs work closely together to ensure that tasks are well-defined, tested, and functioning before they are put into operation. As a result, shortcomings for operational and monitored tasks are limited.

Shortcomings identified in the monitoring process

CGM Y-1 merge

The Y-1 merge was performed for the first time in a manual process. Nordic TSOs sent input in the form of IGMs for 10 different scenarios. In the allocated time for the merging (October 2023) CGMs could be created for 7 out for 10 scenarios. For 3 out 10 scenarios, there was a mismatch of net positions between the CGMA and IGMs, and validation rules (Quality of CGMES Datasets and Calculations) had not been reached.

Since the end of the allocated Y-1 process, further analysis has been done and 2 additional scenarios were merged. There is ongoing issue resolution for the last scenario.

For the coming years Nordic RCC foresees an automated and improved Y-1 CGM process.

Shortcomings in the implementation

It can be emphasised that the implementation of the RCC tasks has proved to be complex and challenging in many ways, both for RCCs and TSOs. At the core of the RCC role is the creation of a Common Grid Model that serves as a basis for most other RCC tasks. The creation of IGMs and a CGM based on the new CGMES standard has never been done before and has proved to be a challenging task.

Relevant challenges or shortcomings in the implementation process are described below:

Computational limitations

The previous IT infrastructure at Nordic RCC had inadequate computational power that, amongst other things, delayed implementation and progress for the CSA service. Only a limited number of MTUs could be calculated in a limited timeframe, reducing possibilities for gaining experience and test data quality.

At the end of 2023, an important milestone has been reached by Nordic RCC, as the upgraded IT infrastructure allowed for a much faster execution of the CSA analysis. Consequently, it is now possible to perform 24 calculations in parallel, meaning that all MTUs can be analysed at the same time.

Requirements for information security

TSOs are obliged to provide data of their grid (IGMs as well as forecast data on consumption, production, and cross-zonal capacities) to ENTSO-E platforms and/or RCCs. Some data is regulated as sensitive, for example in national security legislation in Norway and Sweden. This can lead to conflicts with EU obligations and obligations in national security law. Therefore, there are complications and significant challenges of the sharing of data and the implementation of tasks, as well as the reporting of results. To improve implementation and operation of RCC tasks it is essential to find solutions to the conflicting requirements.

IGM quality

The CGMES standard required for IGMs and CGMs is still a relatively new standard and a new level of detail for most European TSOs. The IGM creation is complex. The merging into a regional or Pan-European CGM is still challenging as it must ensure high-level data quality and compatibility. For the Pan-European CGM, a common platform (OPDE) has been created by ENTSO-E, and European TSOs are providing their IGMs to different degrees.

Progress on the Pan-European CGM creation is reported to NRAs and ACER in a report from ENTSO-E twice a year.

The Nordic region has opted to create a regionally merged CGM with input from all Nordic TSOs taking into account regional specificities. In 2023 progress was made for D-2 data quality in IGMs (used for DA FB domain), which led to a successful delivery of the 3-month EPR evaluation report and an acceptable performance of the FB EPR. More improvements are currently being worked on.

For the D-1 timeframe more experience has to be gained, which will be possible once the D-1 CGM is used in the CSA version 1.0 in 2024.

Further delay of the DA FB go-live

There has been considerable progress with the EPR for the FB capacity calculation as the 3-month EPR report was submitted to Nordic NRAs and was received with positive remarks.

However, complexity of the development and alignment of the various Nordic IT systems and processes which are needed to implement Nordic flow-based capacity calculation in the European Single Day-Ahead Market Coupling (SDAC) have led to a postponement of the go-live date from Q1 2024 to October 2024.

For more information, see the Nordic RCC webpage[33].

[32] under paragraph 4 of Article 46, EU Regulation 2019/943

[33] https://nordic-rcc.net/nordic-flow-based-market-coupling-go-live-expected-october-2024/

FINANCIAL STATEMENTS

CONTENT

KEY FIGURES AND RATIOS

Key figures

(DKK'000)	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Revenue	228,410	97,740
Operating profit/loss	9,742	5,174
Financial income and expenses	1,136	-319
Profit/loss for the year	9,095	-14,475
Total assets	432,258	384,664
Investments	-83,405	-38,010
Equity	327,476	318,381
Average number of employees	58	44

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Income statement

(DKK'000)	Note	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Revenue from contracts with customers	4	228,410	97,740
Employee benefits expenses	5	-48,102	-20,546
Operating expenses	6	-104,659	-44,441
Depreciation and amortisation	9, 10, 11	-65,907	-27,579
OPERATING PROFIT/LOSS		**9,742**	**5,174**
Financial income	7	2,225	149
Financial expenses	7	-1,089	-468
Other expenses	8	0	-22,968
PROFIT/LOSS BEFORE TAX		**10,878**	**-18,113**
Tax on profit/loss	13	-1,783	3,638
PROFIT/LOSS AND TOTAL COMPREHENSIVE INCOME FOR THE FINANCIAL YEAR		**9,095**	**-14,475**

Statement of financial position

Assets

(DKK'000)	Note	31 Dec 2023	31 Dec 2022
Office and IT equipment	9	41,537	18,360
Right-of-use assets	10	17,592	18,681
Intangible assets	11	255,499	259,190
Deposits		1,096	0
Deferred tax assets	13	1,855	3,638
TOTAL NON-CURRENT ASSETS		**317,579**	**299,869**
Trade receivables	16	4,526	17,385
Other receivables	16	20,324	14,035
Cash and cash equivalents		89,829	53,375
TOTAL CURRENT ASSETS		**114,679**	**84,795**
TOTAL ASSETS		**432,258**	**384,664**

Equity and liabilities

(DKK'000)	Note	31 Dec 2023	31 Dec 2022
Share capital	12	2,100	2,100
Share premium	12	330,756	330,756
Reserve for development costs		54,196	15,620
Retained earnings		-59,576	-30,095
TOTAL EQUITY		**327,476**	**318,381**
NON-CURRENT LIABILITIES			
Lease liabilities	10	17,361	18,376
Decomissioning provisions	10	1,000	1,000
TOTAL NON-CURRENT LIABILITIES		**18,361**	**19,376**
CURRENT LIABILITIES			
Lease liabilities	10	2,707	425
Trade and other payables	14	83,714	46,482
TOTAL CURRENT LIABILITIES		**86,421**	**46,907**
TOTAL LIABILITIES		**104,782**	**66,283**
TOTAL EQUITY AND LIABILITIES		**432,258**	**384,664**

Statement of changes in equity

Attributable to the shareholders of Nordic RCC A/S

(DKK'000)	Share capital	Reserve for development cost	Share premium	Retained earnings	TOTAL EQUITY
EQUITY AT 1 JAN 2023	2,100	15,620	330,756	-30,095	**318,381**
Development costs for the year	0	38,576	0	-38,576	**0**
Net profit/loss for the period	0	0	0	9,095	**9,095**
Other comprehensive income	0	0	0	0	**0**
TOTAL COMPREHENSIVE INCOME	**0**	**38,576**	**0**	**-29,481**	**9,095**
EQUITY AT 31 DEC 2023	**2,100**	**54,196**	**330,756**	**59,576**	**327,476**

(DKK'000)	Share capital	Reserve for development cost	Share premium	Retained earnings	TOTAL EQUITY
EQUITY AT 6 DEC 2021	400	0	0	0	**400**
Development costs for the year	0	15,620	0	-15,620	**0**
Net profit/loss for the period	0	0	0	-14,475	**-14,475**
Other comprehensive income	0	0	0	0	**0**
TOTAL COMPREHENSIVE INCOME	**0**	**15,620**	**0**	**-30,095**	**-14,475**
Asset contribution	600	0	265,556	0	**266,156**
Cash contributions	1,100	0	65,200	0	**66,300**
EQUITY AT 31 DEC 2022	**2,100**	**15,620**	**330,756**	**-30,095**	**318,381**

Statement of cash flow

(DKK'000)	Note	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Profit/loss before tax		10,878	-18,113
Non-cash items:			
Depreciation	9,10,11	65,907	27,579
Change in working capital	15	43,802	15,062
Financial income		-2,225	-149
Financial expenses		1,089	468
TOTAL NON-CASH ITEMS		**119,451**	**24,847**
Finance income, received		1,889	97
Finance cost, paid		-1,089	-44
CASH FLOW FROM OPERATING ACTIVITIES		**120,251**	**24,900**
Purchase of office equipment, intangibles	9, 11	-83,405	-38,010
NET CASH FLOWS FROM INVESTING ACTIVITIES		**-83,405**	**-38,010**
Proceeds from capital increase		0	66,300
Payment of principal portion of lease liabilities	10	-392	-215
CASH FLOW FROM FINANCING ACTIVITIES		**-392**	**66,085**
Cash and cash equivalents, opening balance		53,375	400
Net increase/decrease in cash and cash equivalents		36,454	52,975
Cash and cash equivalents in the cash flow statement comprise:			
CASH AND CASH EQUIVALENTS, CLOSING BALANCE		**89,829**	**53,375**

The figures in the cash flow statement cannot be directly derived from the figures in the balance sheet.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Note 1: Corporate information

The company (Nordic RCC A/S) was incorporated on 6 December 2021 and established for the purpose of meeting EU regulation requirements. Nordic RCC A/S is one of six regional coordination centres in Europe that will support national transmission system operators (TSOs) in optimising the operation of the European electricity system both in terms of security and capacity utilisation.

The Board of Directors and the Executive Board reviewed and approved the annual report for 2023 for Nordic RCC A/S on 22 March 2024.

The annual report will be submitted to Nordic RCC A/S' shareholders for approval at the ordinary general meeting on _____ 2024.

Note 2: Significant accounting policies

2.1 Basis of preparation

The financial statements for 2023 have been prepared on a going concern basis and in accordance with IFRS® Accounting Standards as issued by the International Accounting Standards Board (IASB) and as adopted by the EU and additional Danish disclosure requirements for the financial statements of reporting class C (Medium) enterprises, cf. the Danish Executive Order on Adoption of IFRS ('IFRS-bekendtgørelsen') issued in accordance with the Danish Financial Statements Act ('DFSA').

The accounting policies are consistent with those applied in the financial statements for the period 6 Dec 2021 – 31 Dec 2022.

The Financial Statements are presented in Danish kroner (DKK) which is the functional currency of the company. All values are rounded to the nearest thousands, except when otherwise indicated.

The financial statements have been prepared on a historical cost basis.

The company's general accounting policies are described below and have been applied consistently in respect of the financial year and the comparative figures.

2.2 Materiality in financial reporting

In the preparation of the financial statements, Management aims to focus on the information considered to be material and relevant for the understanding of the company's performance in the reporting period.

If a line item is not individually material, it is aggregated with other items of a similar nature in the financial statements or in the notes.

Management provides specific disclosures required by IFRS unless the information is not applicable or considered immaterial to the economic decision-making of the users of these financial statements.

2.3 Summary of significant accounting policies

a) Revenue from contracts with customers

Revenue from contracts with customers is recognised when control of the services is transferred to the customer at an amount that reflects the consideration to which the company expects to be entitled in exchange for those services. Indirect taxes and discounts, etc., are deducted from the sales income when calculating turnover.

The fundamental principle of the IFRS 15 standard is that sales revenue should be recognised when control over the service is transferred to the customer. A five-step process is to be applied when recognising sales revenue:

- Identify the customer contract(s)
- Identify the individual performance obligations
- Determine the transaction price according to the contract
- Allocate the transaction price to individual performance obligations, and
- Recognise revenue when each performance obligation is met.

The company delivers the following material services to its TSO owners which are considered to be stand ready obligations and a series of distinct services.

- Outage Planning Coordination (OPC) is conducted in order to maintain the high voltage grid. New lines and stations must be built, and old ones removed. Outages of the grid elements are needed to do this. Regional Outage Planning Coordination is done in order to facilitate that the impact is known, coordinated, and shared among the TSOs to optimise the availability of the grid and to minimise the negative impact on the security of supply and the market.
- The main purpose of the Common Grid Model (CGM) is to provide a common data model representing the power system in the Nordic and Pan-European area, which can be used for performing further analysis through the services performed by the company, in order to ensure a secure power market and security of supply.
- Coordinated Capacity Calculation (CCC) is the service where cross-border transmission capacities are calculated in order to maximise the transmission capacity offered to the market and in order to ensure a secure power market and security of supply.
- The main purpose of the Coordinated Security Analysis (CSA) service is to identify operational security risks and recommend preventive remedial actions to the individual TSOs.
- Short-Term Adequacy (STA) analyses whether there is sufficient reliable available production capacity to meet the consumption, given the transmission capacity constraints in the grid. This assessment is done daily for the next 7 days' time frame and provides the TSOs with an STA forecast.

Besides the services described above, the company also delivers services to third parties such as ENTSO-E and CCR Hansa.

The selling price of its services to its TSO owners is based on a cost-plus model.

The company recognises revenue from its services over time because the customer simultaneously receives and consumes the benefits provided to them. The company uses an input method in measuring progress of the services because there is a direct relationship between the company's effort (e.g., based on the labour hours incurred) and the transfer of service to the customer. The company recognises revenue on the basis of the labour hours spent relative to the total expected labour hours to complete the service.

Trade receivables

A receivable is recognised if an amount of consideration that is unconditional is due from the customer (i.e., only the passage of time is required before payment of the consideration is due).

Since the vast majority of the revenue is invoiced in advance and the counterparties (i.e. primarily TSO owners) have a very low credit risk (ultimately state-owned, except Fingrid, where the Finnish state is the majority shareholder), no impairment is recognised due to immateriality.

b) Employee benefits expenses

Employee benefits expenses consist of salaries, pensions and social costs, vacation pay, and other benefits. Employee benefits expenses are recognised in the year in which the associated services are rendered by the employees. The company has entered into retirement benefits schemes and similar agreements with employees. Contributions to defined contribution plans are recognised in the income statement in the period to which they relate, and any contributions outstanding are recognised in the statement of financial position as other liabilities.

c) Taxes

Current income tax

Current income tax assets and liabilities are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted, or substantively enacted, at the reporting date in the countries where the company operates and generates taxable income. Management periodically evaluates positions taken in the tax returns with respect to situations in which applicable tax regulations are subject to interpretation and establishes provisions where appropriate.

Deferred tax

Deferred tax is provided using the liability method on temporary differences between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes at the reporting date.

Deferred tax liabilities are recognised for all taxable temporary differences.

Deferred tax assets are recognised for all deductible temporary differences, the carry forward of any unused tax losses. Deferred tax assets are recognised to the extent that it is probable that taxable profit will be available against which the deductible temporary differences, and the carry forward of unused tax losses can be utilised.

The carrying amount of deferred tax assets is reviewed at each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilised.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the year when the asset is realised or the liability is settled, based on tax rates (and tax laws) that have been enacted, or substantively enacted, at the reporting date.

The company offsets deferred tax assets and deferred tax liabilities if, and only if, it has a legally enforceable right to set off deferred tax assets and deferred tax liabilities, it relates to the same taxation authority, and the company can realise the assets and settle the liabilities simultaneously, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered.

d) Financial income and expenses

Financial income and expenses comprise interest income and expenses and exchange rate adjustments.

e) Office equipment

Office equipment is measured at cost less accumulated depreciation and impairment. Cost comprises the acquisition price and other directly attributable costs until the date on which the asset is available for use.

Depreciation is recognised on a straight-line basis from the time of acquisition, or when the asset is available for use, over the expected useful life. The expected useful lives are assessed individually for every class of assets. A reassessment is made once a year to ascertain that the depreciation basis reflects the expected useful lives and future residual values of the assets.

The expected useful lives are as follows:

- IT & Office equipment: 3-5 years

f) Leases

The company assesses at contract inception whether a contract is, or contains, a lease. That is, if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

The company as a lessee

The company applies a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets. The company recognises lease liabilities to make lease payments and right-of-use assets representing the right to use the underlying assets.

Right-of-use assets

The company recognises right-of-use assets at the commencement date of the lease (i.e., the date the underlying asset is available for use). Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any remeasurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognised, initial direct costs incurred, decommissioning provision, and lease payments made at or before the commencement date less any lease incentives received. Right-of-use assets are depreciated on a straight-line basis over the shorter of the lease term and the estimated useful lives of the assets, as follows:

- Property: 4-10 years

The right-of-use assets are also subject to an impairment assessment on an annual basis or if there are any indications.

Lease liabilities

At the commencement date of the lease, the company recognises lease liabilities measured at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in-substance fixed payments), variable lease payments that depend on an index or a rate, and amounts expected to be paid under residual value guarantees. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the company and payments of penalties for terminating the lease, if the lease term reflects the company exercising the option to terminate.

Variable lease payments that do not depend on an index or a rate are recognised as expenses in the period in which the event or condition that triggers the payment occurs.

In calculating the present value of lease payments, the company uses its incremental borrowing rate at the lease commencement date because the interest rate implicit in the lease is not readily determinable.

After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the lease payments (e.g., changes to future payments resulting from a change in an index or rate used to determine such lease payments), or a change in the assessment of an option to purchase the underlying asset.

Short-term leases and leases of low-value assets

The company applies the short-term lease recognition exemption to its short-term leases of machinery and equipment (i.e., those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option). It also applies the lease of low-value assets recognition exemption to leases of office equipment that are considered to be low value. Lease payments on short-term leases and leases of low-value assets are recognised as expense on a straight-line basis over the lease term.

g) Intangible assets

The company's intangible assets are internally generated and have finite useful lives.

Research costs are expensed as incurred. Development expenditures on an individual project are recognised as an intangible asset when the company can demonstrate:

- The technical feasibility of completing the intangible asset so that the asset will be available for use or sale
- Its intention to complete and its ability and intention to use or sell the asset
- How the asset will generate future economic benefits
- The availability of resources to complete the asset
- The ability to measure reliably the expenditure during development

Following initial recognition of the development expenditure as an asset, the asset is carried at cost less any accumulated amortisation and accumulated impairment losses. Amortisation of the asset begins when development is complete, which for some projects are defined in major releases, and the asset is available for use. It is amortised over the period of expected future benefit on a straight-line basis. Amortisation is recorded in 'Depreciation and amortisation'. During the period of development, the asset is assessed for impairment on an annual basis.

When recognising development projects as intangible assets, an amount equalling the costs incurred less deferred tax is taken to equity under

'Reserve for development costs' that is reduced as the development projects are amortised and written down.

h) Impairment of non-financial assets
The company assesses at each reporting date, whether there is an indication that an asset may be impaired. The company thoroughly assesses both external and internal sources of information. If any indication exists, or when annual impairment testing for an asset is required, the company estimates the asset's recoverable amount.

As an inherent part of its business model, the company has agreed with its owners that revenue is based on a cost-plus model where costs include depreciation of non-current assets and a 5% markup. Hence, the future cash flows of a capitalised asset will always exceed the carrying amounts as long as the intended use is upheld (i.e., not disposed of prior to the end of the useful life).

i) Cash
Cash in the statement of financial position comprises cash at banks and on hand.

j) Decommissioning provision
A provision has been recognised for decommissioning costs associated with the company's leased office area at Copenhagen Towers. The company is committed to decommissioning and restoring the site as a result of implemented safety measures.

Provisions are measured at an amount reflecting Management's best estimate of the costs required to settle the obligation.

k) Other payables
Other payables comprise debt to public authorities, holiday allowance, etc., and are measured at amortised cost, which usually corresponds to the nominal value.

l) Cash flow
The cash flow statement shows the cash flows from operating, investing, and financing activities for the year, the year's changes in cash and cash equivalents as well as cash and cash equivalents at the beginning and end of the year.

Cash flows from operating activities are calculated in accordance with the indirect method based on profit/loss after tax adjusted for non-cash operating items, changes in working capital, interest received and paid, including the interest element related to recognised lease commitments, dividends received, and corporation tax paid.

Cash flows from investing activities comprise payments in connection with acquisitions of intangible assets, equipment, and other non-current assets.

Cash flows from financing activities comprise changes in the size or composition of the share capital and related expenses as well as repayment of lease commitments.

Cash and cash equivalents comprise cash at bank and in hand.

Note 3: Significant accounting judgements, estimates and assumptions

As part of the preparation of the financial statements, Management makes a number of accounting estimates and assumptions as a basis for recognising and measuring the company's assets, liabilities, income, and expenses as well as judgements made in applying the company's accounting policies. The estimates, judgements, and assumptions are made based on experience gained and other factors that are considered prudent by Management in the circumstances, but which are inherently subject to uncertainty and volatility.

The assumptions may be incomplete or inaccurate, and unforeseen events or circumstances may occur, for which reason the actual results may differ from the estimates and judgements made.

Estimates and assumptions
The key assumptions concerning the future and other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year, are described below. The company has based its assumptions and estimates on parameters available when the financial statements were prepared. Existing circumstances and assumptions about future developments, however, may change due to market changes or circumstances arising that are beyond the control of the company. Such changes are reflected in the assumptions when they occur.

Development costs
The company capitalises costs in connection with on-premise, internally developed IT systems. Initial capitalisation of costs is based on Management's judgement that technological and economic feasibility is confirmed. In determining the amounts to be capitalised, Management makes assumptions regarding eligibility of capitalisation of development costs, the expected future cash generation of the project, and the expected period of benefits.

Note 4 - Revenue from contracts with customers

Set out below is the disaggregation of the company's revenue from contracts with customers:

(DKK'000)	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Revenue from shareholders	205,172	91,100
Other revenue from shareholders	14,934	3,263
Other revenue from thirdparties	8,304	3,377
TOTAL REVENUE FROM CONTRACTS WITH CUSTOMERS	**228,410**	**97,740**

As an inherent part of its business model and agreed with its owners, the company primarily provides its services to the four TSOs in the Nordic countries (i.e. Denmark, Norway, Sweden, and Finland). Revenue is split on an even basis. In addition, services are also delivered to operators within the European TSO market.

Performance obligations

The company applies the exemption in IFRS 15.121 not to disclose information about the aggregate amount of the transaction price allocated to performance obligations that are unsatisfied, since the company has entered into a service agreement with its owners and other customers where the company always has a right to invoice an amount that corresponds directly with the performance to date i.e. both hours and incurred costs.

Note 5: Employees benefits expenses

(DKK'000)	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022*
TYPE OF SERVICE		
Wages and salaries	37,655	15,871
Social security costs	271	252
Pension costs (defined contribution plan)	4,776	1,782
Other employee expenses	5,400	2,641
TOTAL EMPLOYEES BENEFITS EXPENSE	**48,102**	**20,546**
Average number of employees	58	44

*2022 was calculated for the period 30 June - 31 December 2022.

Compensation of key management personnel of the company

(DKK'000)	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Short-term employee benefits (wages, salaries and social security costs)	7,697	4,038
Post-employment benefits (pension costs)	1,053	575
TOTAL	**8,750**	**4,613**

With reference to section 98b(3)(2) of the Danish Financial Statements Act, information on remuneration for the Executive Board and the Board of Directors has been omitted.

The amounts disclosed in the table are the amounts recognised as an expense during the reporting period related to key management personnel (see definition of key management personnel in note 18).

Short-term employee benefits also comprise DKK 933 thousand in compensation to a former employee.

Note 6: Operating expenses

(DKK'000)	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Marketing costs	497	755
Consultant services	46,647	20,139
IT costs (License, Hosting, Maintanance)	54,029	20,632
Facilities and other office equipment	3,486	2,915
TOTAL OPERATING EXPENSES	104,659	44,441

Note 7: Financial income and expenses

Financial income

(DKK'000)	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Interest income from assets measured at amortised cost	2,225	149
TOTAL FINANCIAL INCOME	2,225	149

Financial expenses

(DKK'000)	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Interest expenses from liabilities measured at amortised cost	-760	-434
Exchange rate adjustment	-294	-14
Other financial expenses	-35	-20
TOTAL FINANCIAL EXPENSES	-1,089	-468

Note 8: Other expenses

(DKK'000)	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Costs related to carve-out	0	22,968
TOTAL OTHER EXPENSES	0	22,968

Other expenses in 2022 primarily relate to costs regarding the carve out from Energinet to Nordic RCC and are therefore non-recurring by nature.

Note 9: Office equipment & IT equipment

(DKK'000) 2023	Office equipment	IT equipment	Construction in progress	TOTAL
Cost at 1 Jan 2023	0	7,321	11,081	18,402
Additions	0	0	26,989	26,989
Transfer	2,430	34,789	-37,220	0
COST AT 31 DEC 2023	**2,430**	**42,110**	**850**	**45,391**
Depreciation and impairment at 1 Jan 2023	0	-42	0	-42
Depreciation for the year	-374	-3,437	0	-3,812
DEPRECIATION AND IMPAIRMENT AT 31 DEC 2023	**-374**	**-3,479**	**0**	**-3,854**
CARRYING AMOUNT AT 31 DEC 2023	**2,056**	**38,631**	**850**	**41,537**

(DKK'000) 2022	Office equipment	IT equipment	Construction in progress	TOTAL
Cost at 6 Dec 2021	0	0	0	0
Asset contributions as at 30 June 2022	0	417	0	417
Additions	0	0	17,985	17,985
Transfer	0	6,904	-6,904	0
COST AT 31 DEC 2022	**0**	**7,321**	**11,081**	**18,402**
Depreciation and impairment at 6 Dec 2021	0	0	0	0
Depreciation for the year	0	-42	0	-42
DEPRECIATION AND IMPAIRMENT AT 31 DEC 2022	**0**	**-42**	**0**	**-42**
CARRYING AMOUNT AT 31 DEC 2022	**0**	**7,279**	**11,081**	**18,360**

Note 10: Leases

Right-of-use assets

Set out below are the carrying amounts of right-of-use assets recognised and the movements during the period:

(DKK'000) 2023	Car	Office rent	TOTAL
As at 1 Jan 2023	0	18,681	18,681
Additions	379	521	900
Depreciation expense	-40	-1,948	-1,988
AS AT 31 DEC 2023	**339**	**17,253**	**17,592**

(DKK'000) 2022	Car	Office rent	TOTAL
As at 6 Dec 2021	0	0	0
Additions*	0	19,644	19,644
Depreciation expense	0	-963	-963
AS AT 31 DEC 2022	**0**	**18,681**	**18,681**

* The decommissioning provision is included in the cost.

Lease liabilities

Set out below are the carrying amounts of lease liabilities and the movements during the period:

(DKK'000) 2023	Car	Office rent	TOTAL
As at 1 Jan 2023	0	18,801	18,801
Additions	379	521	900
Interest expense	6	752	758
Payments	-42	-349	-391
AS AT 31 DEC 2023	**343**	**19,725**	**20,068**

(DKK'000) 2022	Car	Office rent	TOTAL
As at 6 Dec 2021	0	0	0
Additions	0	18,646	18,646
Interest expense	0	370	370
Payments	0	-215	-215
AS AT 31 DEC 2022	**0**	**18,801**	**18,801**

The following are the amounts recognised in profit or loss:

(DKK'000)	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Depreciation expense of right-of-use assets	-1,988	-963
Interest expense on lease liabilities	758	370
Expense relating to leases of low-value assets (included in operating expenses)	-247	-10
Expense relating to short-term leases (included in operating expenses)	-193	-88
TOTAL AMOUNT RECOGNISED IN PROFIT OR LOSS	**-1,670**	**-691**

The company had total cash outflows for recognised leases of DKK 392 thousand (6 Dec 2021 - 31 Dec 2022: DKK 215 thousand). Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions.

The decommissioning provision recognised as part of the cost of the right-of-use asset is expected to be settled at the end of the lease term.

The four shareholders are represented in the Board of Directors. The Board has six ordinary Board meetings annually following an annual cycle ensuring relevant topics are covered regularly, such as risks, budget, annual reporting, strategy, and evaluations and reviews.

Note 11: Intangible assets

(DKK'000) 2023	IT systems	Development costs (in-progress)	TOTAL
Cost at 1 Jan 2023	280,340	5,424	285,764
Additions – internally developed	0	56,416	56,416
Transfers	58,234	-58,234	0
COST AT 31 DEC 2023	**338,574**	**3,606**	**342,180**
Depreciation and impairment at 1 Jan 2023	-26,574	0	-26,574
Depreciation for the year	-60,107	0	-60,107
DEPRECIATION AND IMPAIRMENT AT 31 DEC 2023	**-86,681**	**0**	**-86,681**
CARRYING AMOUNT AT 31 DEC 2023	**251,893**	**3,606**	**255,499**

(DKK'000) 2022	IT systems	Development costs (in-progress)	TOTAL
Cost at 6 Dec 2021	0	0	0
Asset contribution as at 30 Jun 2022	265,739	0	265,739
Additions – internally developed	0	20,025	20,025
Transfers	14,601	-14,601	0
COST AT 31 DEC 2022	**280,340**	**5,424**	**285,764**
Depreciation and impairment at 6 Dec 2021	0	0	0
Depreciation for the year	-26,574	0	-26,574
DEPRECIATION AND IMPAIRMENT AT 31 DEC 2022	**-26,574**	**0**	**-26,574**
CARRYING AMOUNT AT 31 DEC 2022	**253,766**	**5,424**	**259,190**

As at 31 Dec 2023, the company has one research and development project (internally generated) which consists of approx. 61% (31 Dec 2022: 65 %) of total assets.

The project (NorCap) is related to the service Coordinated Capacity Calculation and is gradually released to production. Up until 31 Dec 2023, the project has made 6 releases out of currently planned 8 releases (2022: 4 releases). More releases are expected to follow. The useful life of each release is currently estimated to five years.

R&D costs estimated to DKK 2,043 thousand (2022: DKK 2,743 thousand) have been recognised in profit or loss during the year.

No impairment has been recognised during the year.

Note 12: Share capital

The share capital comprises 2,100,000 shares of DKK 1 each (31 Dec 2022: DKK 2,100,000). The shares are all authorised, issued, and fully paid. No shares carry any additional special rights. The company continuously assesses the need for adjustment of the capital structure.

There is no dividend proposed for the year (31 Dec 2022: DKK 0).

Note 13: Income tax

Tax on profit/loss for the year

(DKK'000)	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Deferred tax for the year	-1,898	3,638
Adjustment of deferred tax concerning previous years	115	0
TOTAL TAX ON PROFIT FOR THE YEAR	**-1,783**	**3,638**

Reconciliation of tax expense and the profit/loss multiplied by domestic tax rate

(DKK'000)	1 Jan 2023 - 31 Dec 2023	6 Dec 2021 - 31 Dec 2022
Profit before tax	*10,878*	*-18,113*
Tax calculated as 22% of profit/loss for the year	-2,393	3,985
Tax effect of non-deductible expenses	-11	-619
Tax effect of tax increase of R&D and other equipment	621	272
INCOME TAX AT THE EFFECTIVE INCOME TAX	**-1,783**	**3,638**
INCOME TAX EXPENSE REPORTED IN THE INCOME STATEMENT	**-1,783**	**3,638**
Effective tax rate for the year (%)	16.4%	20.1%

Deferred tax

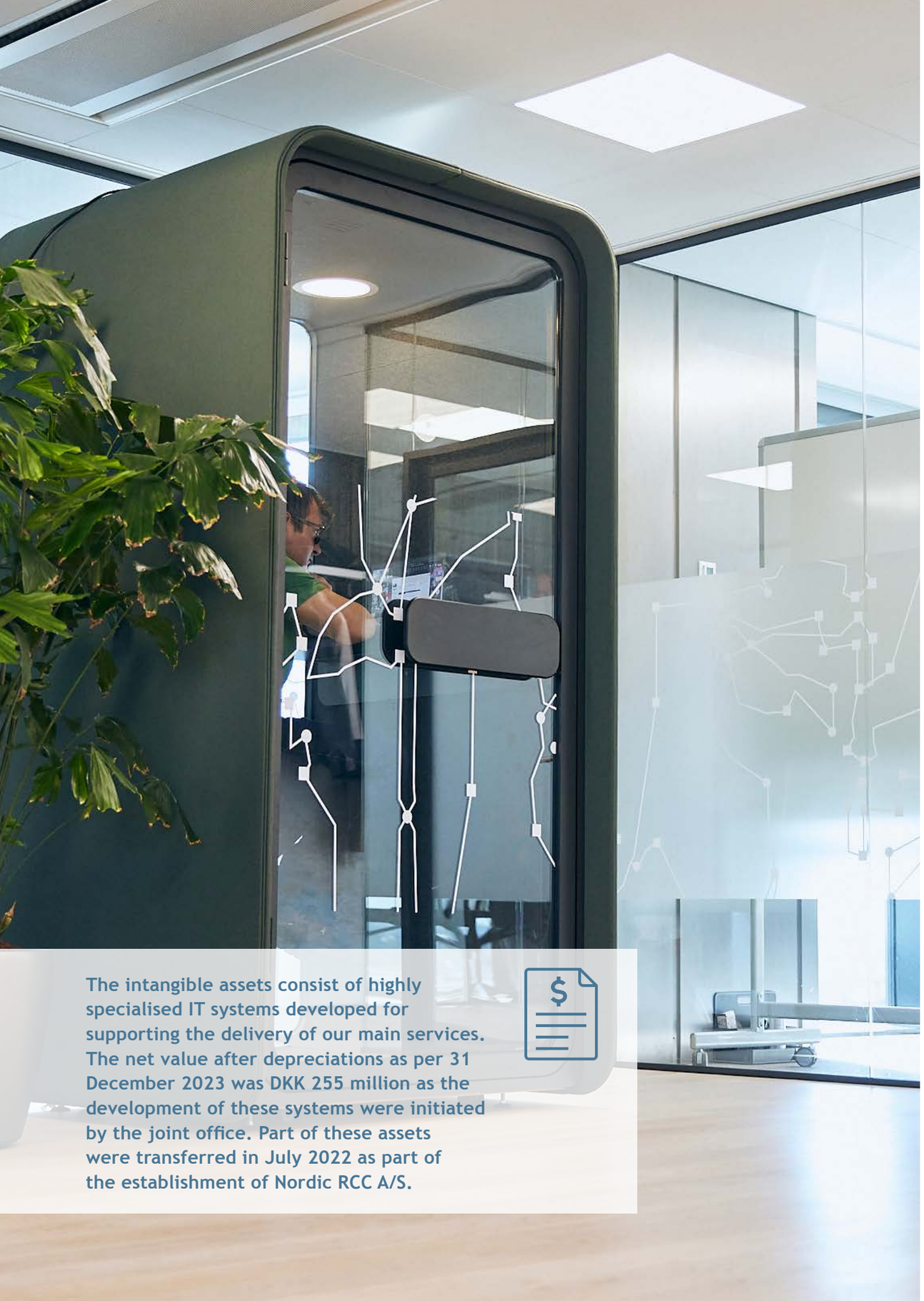
Deferred tax is measured on the temporary differences between the carrying amount and the tax value of assets and liabilities.

Deferred tax assets, including the tax value of tax loss carry-forwards, are measured at the expected realisable value of the asset, either by set-off against tax on future earnings or by set-off against deferred tax liabilities within the same legal tax entity.

(DKK'000)	1 Jan 2023	Recognised during the period	31 Dec 2023
Intangible assets	3,387	-47,212	-43,825
Office equipment	-34	44,950	44,916
Leases	246	518	764
Tax loss carried forward	39	-39	0
TOTAL	3,638	-1,783	1,855

(DKK'000)	06 Dec 2021	Recognised during the period	31 Dec 2022
Intangible assets	0	3,387	3,387
Office equipment	0	-34	-34
Leases	0	246	246
Tax loss carried forward	0	39	39
TOTAL	0	3,638	3,638

According to an assessment from Management, it is probable that the company will generate taxable profit within the following years where the deferred tax asset can be utilised.



The intangible assets consist of highly specialised IT systems developed for supporting the delivery of our main services. The net value after depreciations as per 31 December 2023 was DKK 255 million as the development of these systems were initiated by the joint office. Part of these assets were transferred in July 2022 as part of the establishment of Nordic RCC A/S.

Note 14: Trade and other payables

Trade payables are obligations to pay for goods or services that have been acquired in the ordinary course of business. These are classified as current liabilities if payment is due in one year or less. If payment is due at a later date, they are presented as non-current liabilities.

(DKK'000)	31 Dec 2023	31 Dec 2022
Trade payables	58,737	39,723
Other payables	24,977	6,759
TOTAL TRADE AND OTHER PAYABLES	**83,714**	**46,482**

Trade payables are non-interest bearing and are normally settled on 30-day terms.

Other payables are non-interest bearing and have an average term of 30 days.

Note 15: Working capital

Working capital is defined as current assets (excluding cash) less current liabilities and measures the net liquid assets that the company has available for the business.

(DKK'000)	31 Dec 2023	31 Dec 2022
Change in trade receivables	12,859	-17,385
Change in other receivables	-6,289	-14,035
Change in trade payables and other payables	37,232	46,482
TOTAL WORKING CAPITAL	**43,802**	**15,062**

Note 16 – Financial risks

Capital management

For the purpose of the company's capital management, capital includes issued capital, share premium, and all other equity reserves attributable to the equity holders. The primary objective of the company's capital management is to maximise the shareholder value.

The company manages its capital structure and makes adjustments in light of changes in economic conditions and the requirements of internal financial KPIs. To maintain or adjust the capital structure, the company may issue new shares. The company monitors capital on an ongoing basis.

Financial risk management

The overall framework to manage financial risks is reflected in the company's financial risk management policies. The policies include identification, limits, measurement, and how to address risks regarding credit, foreign currency, liquidity, and interest rates.

The policies are updated annually and approved by Executive Management.

It is the company's policy not to speculate in financial risks. Hence, the financial risk management strategy aims at managing and reducing risks due to the company's operations, investments, and finance activities.

Only significant risks are described below. Each section gives a short description of the financial risk, the related business activity, risk management, and impact during the year.

Liquidity risk

Liquidity risk is the risk of a loss or higher than expected costs to ensure the ability to fulfil the company's short-term and long-term payment obligations. The company aims to ensure that it is able to timely obtain the financing from both related and external counterparties.

Maturity of the company's financial liabilities

(DKK'000) 2023	Less than 1 year	Between 1-5 years	More than 5 years	TOTAL
Lease liabilities	-2,707	-12,399	-8,718	**-23,824**
Trade payables	-58,737	0	0	**-58,737**
Other payables	-24,977	0	0	**-24,977**
TOTAL	**-86,421**	**-12,399**	**-8,718**	**-107,538**

(DKK'000) 2022	Less than 1 year	Between 1-5 years	More than 5 years	TOTAL
Lease liabilities	-425	-12,248	-10,586	**-23,259**
Trade payables	-39,723	0	0	**-39,723**
Other payables	-6,759	0	0	**-6,759**
TOTAL	**-46,907**	**-12,248**	**-10,586**	**-69,741**

Methods and assumptions of the maturity analysis

The maturity analysis is based on undiscounted cash flows which include estimated interest payments.

Credit risk

Credit risk is the risk that a counterparty will not meet its obligations towards the company, leading to a financial loss. The company is only to a limited extent exposed to credit risk since the company invoices the majority of the revenue in advance and the primary customers are the TSO owners that ultimately are state-owned (except Fingrid, where the Finnish state is the majority shareholder). Credit risk is primarily related to its trade and other receivables, including cash held at financial institutions.

The maximum exposure to credit risk at the end of the reporting period equals the carrying amounts.

Categories of financial assets and liabilities

Financial assets

(DKK'000)	31 Dec 2023	31 Dec 2022
Trade receivables	4,526	17,385
Other receivables	20,324	14,035
Cash and cash equivalents	89,829	53,375
FINANCIAL ASSETS MEASURED AT AMORTISED COST	**114,679**	**84,795**

Financial liabilities

(DKK'000)	31 Dec 2023	31 Dec 2022
Lease liabilities	20,068	18,801
Trade and other payables	83,714	46,482
FINANCIAL LIABILITIES MEASURED AT AMORTISED COST	**103,782**	**65,283**

Since the company's financial instruments measured at amortised cost are either short-term and/or exposed to floating interest rates, Management has assessed that the carrying amount is a reasonable approximation of fair value.

Note 17: Changes in liabilities arising from financing activities

(DKK'000)	Total 1 Jan 2023	Asset contribution	Leases additions	Cash flows	Other	TOTAL 31 Dec 2023
Lease liabilities	18,801	0	896	-392	763	20,068
TOTAL	**18,801**	**0**	**896**	**-392**	**763**	**20,068**

(DKK'000)	Total 6 Dec 2021	Asset contribution	Leases additions	Cash flows	Other	TOTAL 31 Dec 2022
Lease liabilities	0	18,646	0	-215	370	18,801
TOTAL	**0**	**18,646**	**0**	**-215**	**370**	**18,801**

Note 18: Related parties

The company is owned by the four Nordic transmission system operators (TSOs) due to EU legislation. The TSOs jointly control the company and are the ultimate controlling party. They each own 25% and are:

- **Energinet**,
  Tonne Kjærsvej 65, Erritsø, 7000 Fredericia
- **Statnett SF**,
  Nydalen allé 33, 0484 Oslo Norway
- **Fingrid OYj**,
  Läkkisepäntie 21, 00620 Helsinki, Finland
- **Affärsverket Svenska kraftnät**,
  Box 1200, 172 24 Sundbyberg, Sweden

Related parties also comprise the key management personnel and their close family members. Key management personnel are persons having authority and responsibility for planning, directing, and controlling the activities of the company, directly or indirectly and consists of:

- The Board of Directors
- CEO
- Head of Business Support
- Head of Business Development
- Head of Data Analytics
- Head of IT Services
- Head of Operations
- Head of Project Implementation

Transactions with owners

(DKK'000) 2023	Sales of key services	Sales of other services	Purchase of services	Asset contri-bution	Equity contri-butions in cash	Amounts owed by related parties*	Amounts owed to related parties**
Energinet ***	51,293	2,067	19,396	0	0	1,129	12,953
Statnett	51,293	4,270	0	0	0	3,997	0
Fingrid	51,293	2,489	0	0	0	2,283	0
Svenska Kraftnät	51,293	6,108	0	0	0	4,002	0
TOTAL	205,172	14,934	19,396	0	0	11,411	12,953

Transactions with owners

(DKK'000) 2022	Sales of key services	Sales of other services	Purchase of services	Asset contri-bution	Equity contri-butions in cash	Amounts owed by related parties*	Amounts owed to related parties**
Energinet ***	22,775	873	86	66,539	16,675	4,712	86
Statnett	22,775	665	1,203	66,539	16,675	3,643	215
Fingrid	22,775	568	0	66,539	16,675	3,546	0
Svenska Kraftnät	22,775	1,158	0	66,539	16,675	4,136	0
TOTAL	91,100	3,264	1,289	266,156	66,700	16,037	301

Terms and conditions of transactions with related parties

Transactions with related parties are made on terms equivalent to those that prevail in arm's length transactions. Outstanding balances at the year-end are unsecured and interest free and settlement occurs in cash. There have been no guarantees provided or received for any related party receivables or payables.

*The amount is classified as either trade or other receivable.

** The amount is classified as trade payable. Transactions with key management personnel comprise salaries, pension and other benefits as described in note 5.

*** The company has entered into a lease agreement with Energinet regarding data centre space. During the year, an interest expense and depreciation has been recognised in income statement amounting to DKK 3 thousand (2022: DKK 2 thousand) and DKK 24 thousand (2022: DKK 12 thousand), respectively. The carrying amount of the right-of-use asset and lease liability at year-end is DKK 60 thousand (2022: DKK 86 thousand) and DKK 61 thousand (2022: DKK 84 thousand), respectively.

Note 19: Standards issued but not yet effective

The new and amended standards and interpretations that are issued, but not yet effective, up to the date of issuance of the company's financial statements are disclosed below. The company intends to adopt these new and amended standards and interpretations, if applicable, when they become effective.

Amendments to IFRS 16: Lease Liability in a Sale and Leaseback

In September 2022, the IASB issued amendments to IFRS 16 to specify the requirements that a seller-lessee uses in measuring the lease liability arising in a sale and leaseback transaction, to ensure the seller-lessee does not recognise any amount of the gain or loss that relates to the right of use it retains.

The amendments are effective for annual reporting periods beginning on or after 1 January 2024 and must be applied retrospectively to sale and leaseback transactions entered into after the date of initial application of IFRS 16. Earlier application is permitted and that fact must be disclosed.

The amendments are not expected to have an impact on the company's financial statements.

Amendments to IAS 1: Classification of Liabilities as Current or Non-current

In January 2020 and October 2022, the IASB issued amendments to paragraphs 69 to 76 of IAS 1 (International Accounting Standard) to specify the requirements for classifying liabilities as current or non-current. The amendments clarify:

- What is meant by a right to defer settlement
- That a right to defer must exist at the end of the reporting period
- That classification is unaffected by the likelihood that an entity will exercise its deferral right
- That only if an embedded derivative in a convertible liability is itself an equity instrument would the terms of a liability not impact its classification

In addition, a requirement has been introduced to require disclosure when a liability arising from a loan agreement is classified as non-current and the entity's right to defer settlement is contingent on compliance with future covenants within twelve months.

The amendments are effective for annual reporting periods beginning on or after 1 January 2024 and must be applied retrospectively.

The amendments are not expected to have a material impact on the company's financial statements.

Supplier Finance Arrangements - Amendments to IAS 7 and IFRS 7

In May 2023, the IASB issued amendments to IAS 7 Statement of Cash Flows and IFRS 7 Financial Instruments: Disclosures to clarify the characteristics of supplier finance arrangements and require additional disclosure of such arrangements. The disclosure requirements in the amendments are intended to assist users of financial statements in understanding the effects of supplier finance arrangements on an entity's liabilities, cash flows, and exposure to liquidity risk.

The amendments will be effective for annual reporting periods beginning on or after 1 January 2024. Early adoption is permitted, but will need to be disclosed.

The amendments are not expected to have an impact on the company's financial statements since the company is not involved in such arrangements.

STATEMENT BY MANAGEMENT

The Board of Directors and the Executive Board have today discussed and approved the annual report of Nordic RCC A/S for the financial year 1 January 2023 - 31 December 2023.

The annual report has been prepared in accordance with the IFRS Accounting Standards as adopted by the EU and additional requirements of the Danish Financial Statements Act.

In our opinion, the financial statements give a true and fair view of the financial position of the company at 31 December 2023 and of the results of its operations and cash flows for the financial year 1 January 2023 - 31 December 2023.

Further, in our opinion, the Management's review gives a fair review of the development in the company's operations and financial matters, the results for the year and the company's financial position.

We recommend that the annual report be approved at the annual general meeting.

Copenhagen, 22 March 2024

Executive Board:

John Henrik Kofod

Board of Directors:

Marina Louhija / Chairperson

Kristin Lucie Muthe

Nicolaj Nørgaard Peulicke

Lars Erik EK

INDEPENDENT AUDITOR'S REPORT

To the shareholders of Nordic RCC A/S

Opinion

We have audited the financial statements of Nordic RCC A/S for the financial year 1 January – 31 December 2023, which comprise income statement, statement of comprehensive income, balance sheet, statement of changes in equity, cash flow statement and notes, including material accounting policy information. The financial statements are prepared in accordance with IFRS Accounting Standards as adopted by the EU and additional requirements of the Danish Financial Statements Act.

In our opinion, the financial statements give a true and fair view of the financial position of the Company at 31 December 2023 and of the results of the Company's operations and cash flows for the financial year 1 January – 31 December 2023 in accordance with IFRS Accounting Standards as adopted by the EU and additional requirements of the Danish Financial Statements Act.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs) and additional requirements applicable in Denmark. Our responsibilities under those standards and requirements are further described in the “Auditor’s responsibilities for the audit of the financial statements” section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We are independent of the Company in accordance with the International Ethics Standards Board for Accountants’ International Code of Ethics for Professional Accountants (IESBA Code) and the additional ethical requirements applicable in Denmark, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the IESBA Code.

Statement on the Management’s review

Management is responsible for the Management’s review.

Our opinion on the financial statements does not cover the Management’s review, and we do not express any assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the Management’s review and, in doing so, consider whether the Management’s review is materially inconsistent with the financial statements, or our knowledge obtained during the audit, or otherwise appears to be materially misstated.

Moreover, it is our responsibility to consider whether the Management’s review provides the information required under the Danish Financial Statements Act.

Based on our procedures, we conclude that the Management’s review is in accordance with the financial statements and has been prepared in accordance with the requirements of the Danish Financial Statements Act. We did not identify any material misstatement of the Management’s review.

Management's responsibilities for the financial statements

Management is responsible for the preparation of financial statements that give a true and fair view in accordance with IFRS Accounting Standards as adopted by the EU and additional requirements of the Danish Financial Statements Act and for such internal control as Management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, Management is responsible for assessing the Company’s ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting in preparing the financial statements unless Management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Auditor’s responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance as to whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor’s report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs and additional requirements applicable in Denmark will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements. As part of an audit conducted in accordance with ISAs and additional requirements applicable in Denmark, we exercise professional judgement and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by Management.

- Conclude on the appropriateness of Management’s use of the going concern basis of accounting in preparing the financial statements and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company’s ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor’s report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor’s report. However, future events or conditions may cause the Company to cease to continue as a going concern.

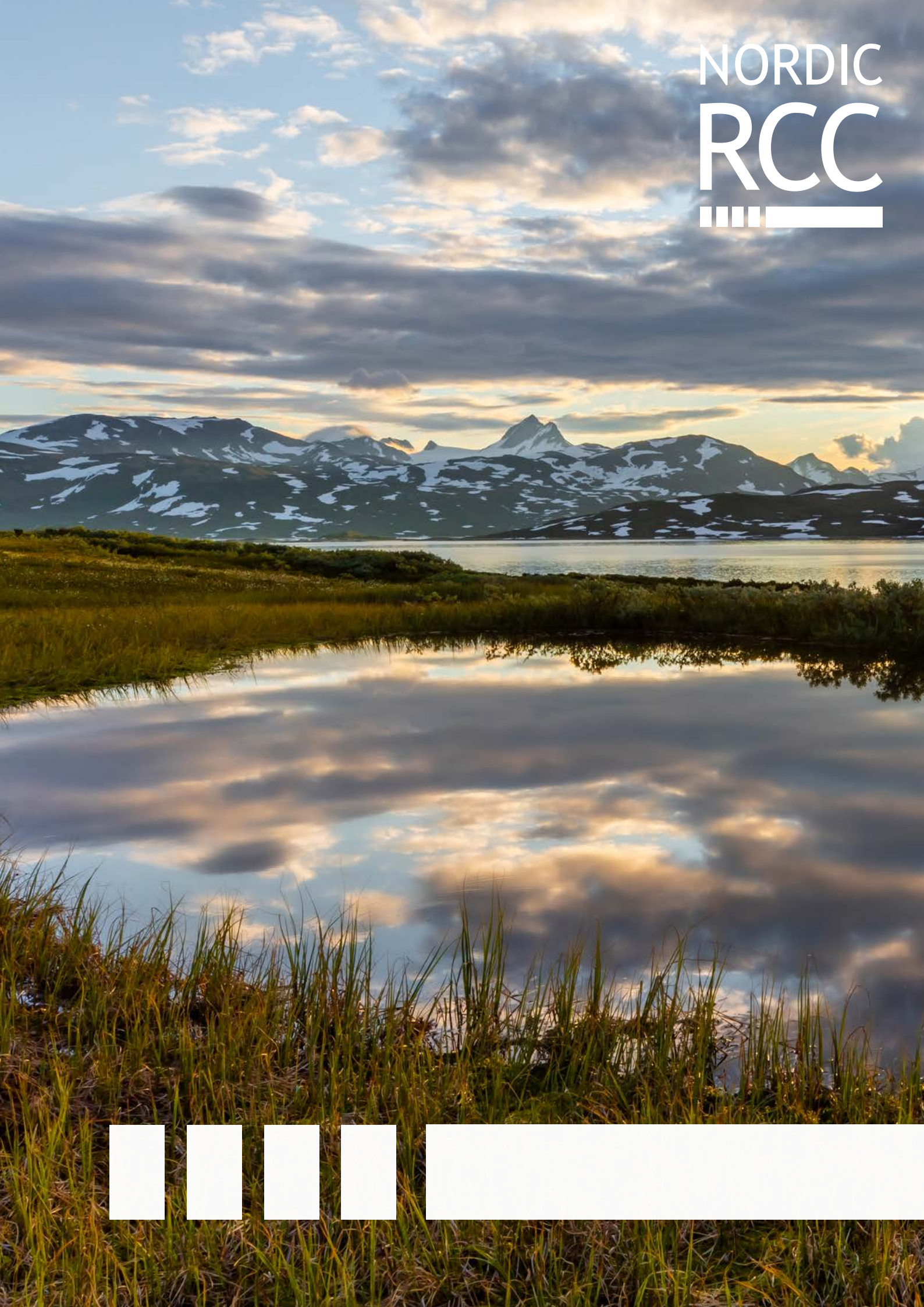
- Evaluate the overall presentation, structure and contents of the financial statements, including the note disclosures, and whether the financial statements represent the underlying transactions and events in a manner that gives a true and fair view.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Copenhagen, 22 March 2024
EY Godkendt Revisionspartnerselskab
CVR no. 30 70 02 28

Michael N. C. Nielsen
State Authorised
Public Accountant
mne26738

Morten Østerkjærhus
State Authorised
Public Accountant
mne45930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