Annual oversight of NRCC 2024

Role of the Nordic RCC

The Nordic Regional Coordination Centre (hereafter "NRCC") is an independent company owned by the four electricity Transmission System Operators in the Nordic region.

The Electricity Market Regulation regulates the establishment of the NRCC with the purpose of supporting the increasingly integrated electricity systems across the EU, ensuring their efficient and secure performance.

Other Regional Coordination Centres (hereafter "RCCs") across Europe are together with the NRCC all responsible of carrying out tasks where their regionalisation brings value compared to tasks performed at national level. As an outcome of these tasks, NRCC supports coordination in the region leading to enhanced digitalization and improved transparency in the operation of the regional electricity system.

The NRCC delivers its results to the individual TSOs enabling the TSOs' decisions based on a regional overview and informed basis. The NRCC tasks reach from capacity calculation, via Outage Planning Coordination, to the analysis of grid incidents and many other tasks, all with the aim of increasing security, efficiency and transparency in the Nordic region.

For a detailed overview and implementation status of regulated tasks, please refer to the latest Annual Report of the NRCC[2].

The role of the NRCC TF

NordREG is an organisation for the Nordic energy regulators. NordREG's role is to promote legal and institutional framework and conditions necessary for developing the Nordic and European electricity markets.

The main organization of NordREG is a rotating Chairmanship whose appointment changes every year. The work in NordREG is organised through an annual Work Programme approved by the Board. In 2023, the NordREG Board established the NRCC Task Force (Nordic RCC TF), whose responsibility is to conduct an annual oversight of the NRCC.

Oversight questions 2024

On October 9 2024, NordREG requested the NRCC to reply to several oversight questions in connection with NordREG's annual oversight of the NRCC in accordance with Directive 2019/944 article 62 (1)(b-g).

On November 15 2024, the Nordic RCC TF and the NRCC held a meeting at the NRCC in Copenhagen for the NRCC to do a presentation based on the oversight questions sent by NordREG to the NRCC on October 9 2024.

NordREG further requested the NRCC to provide written feedback after the oversight meeting held at the NRCC on November 15 2024.

Oversight questions related to costs

NordREG has requested the Nordic RCC to reply to certain cost related questions.

Employee costs

NordREG noted in the NRCC Annual Report 2023, that employees costs increased from DKK 20,546m to DKK 48,102m in the period 2021-2023, however, the number of employees only increased by 14 employees in that same period. NordREG therefore requested the NRCC to elaborate on the employee costs in the period 2021-2023.

NRCC replied that the activities of the RSC[1], including employees, were transferred to the Nordic RCC A/S as per 30 June 2022. Hence, employee expenses as listed in the Annual Report 2023 for the period 6 December 2021 to 31 December 2022 only cover costs for six months (i.e. 1 July 2022 to 31 December 2022). The only exception being costs related to the CEO of the Nordic RCC who commenced employment at the Nordic RCC as per 1 May 2022. NRCC clarified that when adjusting for the shorter cost period, average employee costs were actually lower during 2023 than 2022.

Short-term employee costs

NordREG further requested NRCC to elaborate on the term "short term employee costs" in the NRCC Annual Report 2023. NRCC elaborated that the NRCC does not employ short-term employees and that the term "short-term employee costs" simply covers salary and social security costs for regular employees.

NRCC further informed NordREG that the NRCC primarily employs salaried employees and student assistants. NRCC also engages with a number of external consultants, more specifically approx. 50 external consultants as per 15 November 2024.

Consultancy costs

In the year of 2023 the NRCC spent DKK 43,647m on costs related to consultancy services. The majority of the consultancy costs relates to:

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[1] The establishment of the RCCs replaced the regional security coordinators (RSCs) regulated by the System Operation Guideline.

1) Specialists with certain competencies needed for projects in the first couple of years of the establishment of the Nordic RCC, who are gradually phased out or replaced with permanent employees, and

2) IT-developers needed for developing and maintaining specialized IT tools.

NordREG has also requested NRCC to elaborate on expected costs on external consultants over the next three years. NRCC has replied that the costs related to external consultants will remain significant in the coming years. However, the NRCC has a sourcing strategy. According to this, specialists engaged as external consultants will gradually be phased out or replaced with permanent employees. Regarding IT development, NRCC also expect a slow increase in in-house IT-developers. However, there will still be costs related to external consultancy services.

NRCC informed that the NRCC currently engages approx. 50 external consultants to date, which NordREG considers a quite high number of external consultants considering the size of the NRCC. As per September 2024, the company consisted of 84 FTEs (Full Time Employees).

The NRCC TF will therefore require the NRCC to evaluate the need of external consultants and provide an evaluation of permanent employees versus external consultant in 2025 and that the NRCC reports on the evaluation in connection with the NRCC TF oversight of 2024.

Onboarding and relocation costs

As per request from NordREG, NRCC has further informed us that the NRCC does not track onboarding costs. An extensive intro-program to new employees covers such onboarding costs and consists of:

Common and individual introductory meetings,

Training programs for operators, and

IT-security awareness training (regular training for new and existing employees).

NRCC informed that the NRCC does not cover any relocation costs in connection with employing foreign employees.

Operating costs

NRCC has elaborated on certain operating costs as per request from NordREG.

Accordingly, marketing costs covers both hosting external guests and costs to external communication (mainly for employer branding and transparency purposes). IT costs (License, Hosting and Maintenance) is the biggest operating cost and covers IT-services, which require "high availability" and "high security" in a 24/7-environment.

The NRCC informed us that the NRCC primarily is an IT-company, which constantly requires functional and updated IT to perform the NRCC's tasks and services. Further, the NRCC informed us that the consultancy company Aeven is responsible for infrastructure & server hosting services with facility services delivered from Energinet (dual datacenters).

IT costs further

In the year of 2023 the NRCC spent DKK 54,029m on IT costs. NRCC has informed us that the IT cost represent a significant part of the overall costs for NRCC because a majority of the NRCC's tasks and services are IT-services.

Prerequisites for the operation of NRCCs services includes **1)** High security and high availability operations, **2)** 24/7 operations since October 2024, **3)** two data centres (co-located with Energinet) with management out-sourced to an external vendor and **4)** development of highly specialized bespoke software with "Norcap", used for the flow-based capacity calculation, as the primary application.

Several aspects of the financial reporting in the NRCC Annual Report 2023 reflects the above.

Accordingly, IT-costs is the single biggest cost category in operational expenses as reflected in the NRCC Annual Report 2023.

More than 30 percent of the total staff (including both permanent employees and external consultants) are in the IT department, as per December 2023. Furthermore, most of the investment activities, which were DKK 83.4m in 2023, relates to IT, comprising of investments in IT-infrastructure (Office and IT equipment costs equivalent to DKK 41.5m as per 31 Dec 2023) and Software development such as the IT-resource "Norcap" (Intangible assets equivalent to DKK 255.5m as per 31 December 2023).

The NRCC has informed that the above costs are expected to continue in the coming years, however, with a limited growth in the years of 2025 and 2026 compared to the year of 2023, as this was the year the NRCC was established.

In connection to NordREG's oversight questions regarding IT costs, NordREG has further requested the NRCC to elaborate on the "heaviest" IT items and where the RCC primarily sees a need to develop and spend costs on additional IT-resources.

The NRCC has informed us that investments in the Norcap IT-resource is the biggest IT-cost item, and will continue to be the single biggest driver of capex investments (because of the development of new functionalities to support Flow-based intra-day capacity calculation) and OPEX costs (maintenance of existing application) for at least the next two to three years.

The development of Norcap is primarily carried out by a third party, i.e., the consultancy company "GE".

Investments in migrating and setting up IT-infrastructure were completed in 2023, and the NRCC expects to see future infrastructure investments at a somewhat lower level than in 2023.

NRCC further informed us that future IT-costs relates to the recently developed sourcing strategy, which puts an emphasis on ensuring control of critical applications as well as minimizing risks of potential vendor lock-ins, as well as flexibility in incorporating potential changes from new or changed methodologies into the applications in a swift manner.

When developing the strategy for new applications, the NRCC informs that the NRCC considers that future developments of new applications should rely less on third party developers and more on in-house developers.

NRCC is aware that in-house IT-development supports building and maintaining specialist knowledge in-house, as well as supports keeping all IP-rights in-house. In-house development also supports that the NRCC is in control of the development applications, and supports a more modular approach rather than monolithic towards our application landscape.

NordREG also requested the NRCC to elaborate on the measures the NRCC is taking to ensure that the NRCC has the necessary technical resources to fulfil its regulated obligations.

NordREG will ask the NRCC to provide an evaluation of the strategy of new application with focus on the NRCC being less dependent on third party developers.

The NRCC further elaborates that it especially is important to have the necessary technical knowledge as regards to the sourcing strategy.

Regarding technical (human) resources, NRCC points out the NRCC's location near DTU and Copenhagen is attractive. The location of the NRCC further supports employment of international employees. The NRCC informs of having employees relocating from all over Europe and some from the US, as the working language at NRCC is English, and they therefore can attract a wide range of candidates.

Regarding technical physical resources, the NRCC informs that it has invested in a highly secure and reliable setup to ensure the delivery of their services at a very high rate. The NRCC has invested in two separate server rooms and uses, maintains and regularly tests a backup operational room physically separated from the regular operational room.

The NRCC TF has considered IT and cyber security risks. As the NRCC develops a significant amount of sources through third parties, the NRCC TF assumes that the NRCC is subject to increased cyber security risks. The NRCC TF will therefore require the NRCC to deliver a cyber-security risk evaluation and present it for the NRCC TF in connection with the NRCC TF oversight of 2024.

In that connection, the NRCC TF notes that a coming network code on cyber security will regulate the RCCs.

Oversight questions related to resources

Employees

In connection with the oversight of the NRCC, NordREG has requested the NRCC to elaborate on certain resource related topics, including possible vacant positions.

NRCC has informed that as per 5 November 2024, the NRCC currently has eight open positions. The NRCC expects the open positions to be complete within normal recruiting time.

NRCC has further informed that the NRCC does not have a three-year budget for new hires, however, the present budget for 2025 has a year-end total of 123,5 FTE compared to status as per 5 Nov 2024 with 97,3 FTE (including hired, but not yet commenced). NRCC informed that in the year of 2023, only 1 employee resigned. In addition, 36 new employees were hired in the year of 2023.

NRCC also informed that part of their sourcing strategy, NRCC is insourcing critical capabilities to ensure to have those roles in-house, supplemented with external consultants or strategic partnerships. This set-up will ensure critical knowledge remains in-house.

To recruit (and retain) employees, NRCC has a competitive strategy on employment conditions and use employer branding initiatives to support this.

NRCC has not seen any general problems with recruiting the needed resources, except for a few, very specific positions, which then have been temporarily filled with consultants. NordREG notes that the NRCC engages with 50 external consultants as per today, which is considered a high amount compared to the amount of FTEs in the NRCC and also taking into consideration that the NRCC states that they do not have recruiting problems. Therefore, the NordREG will ask the NRCC to consider initiating a higher number of open positions to avoid that the NRCC are too dependent on external consultants.

NRCC has also been able to maintain a very high retention rate, e.g., 95% YTD 2024.

NRCC has also informed that the NRCC defines and organizes joint training programs with the other European RCCs based on the ACER decision 07-2022 (Regional Coordination Centre Training and Certification of Staff Methodology).

NRCC is a part of the Training & Certification Implementation WG (TCI WG), under the RWT (RCC Working Table). Nordic RCC Training Manager has been PMO since mid-2022. The TCI WG has produced four Joint Training Modules (JTM) for the four pan-European services (STA, OPC, RIAR, CGS). They also have more joint training modules in the pipeline for the coming years.

Nordic RCC participated in this year's RCC-RCC workshop with the highest number of operators so far (five). Nordic RCC has also been organizing and participating in a visit of operators between CORESO and Nordic RCC in 2023-2024 as well as visits between NRCC and the Nordic TSO operators.

Evaluation of Flow-based and Common Grid Model Projects

In connection with this year's oversight of the NRCC, NordREG has found it relevant to request the NRCC to evaluate on the Flow-based and Common Grid Model Projects. Specifically, to elaborate onthe lessons learned from these two projects, including how to minimize the delay of similar projects, and elaborate on initiatives taken to optimize similar processes in the future.

The NRCC clarifies that as per 15 November 2024, NRCC is about to finalize the Day-ahead Flow-Based (hereafter "DA FB") Implementation Project that includes the two day-ahead Common Grid Model (D-2 CGM).

Implementation of the Flow-based Capacity Calculation and creation of a regional Nordic Common Grid model will continue for different timeframes in the future.

Regarding lessons learned, the DA FB task has gone live on 29 October 2024 and the project's "hypercare" period is still ongoing as per 15 November 2024. Accordingly, the reflections on the projects below are preliminary and not final.

The NRCC has provided us with the graph below illustrating a preliminary internal evaluation with lessons learned:

Figur 1the graph below illustrates a preliminary internal evaluation with lessons learned:
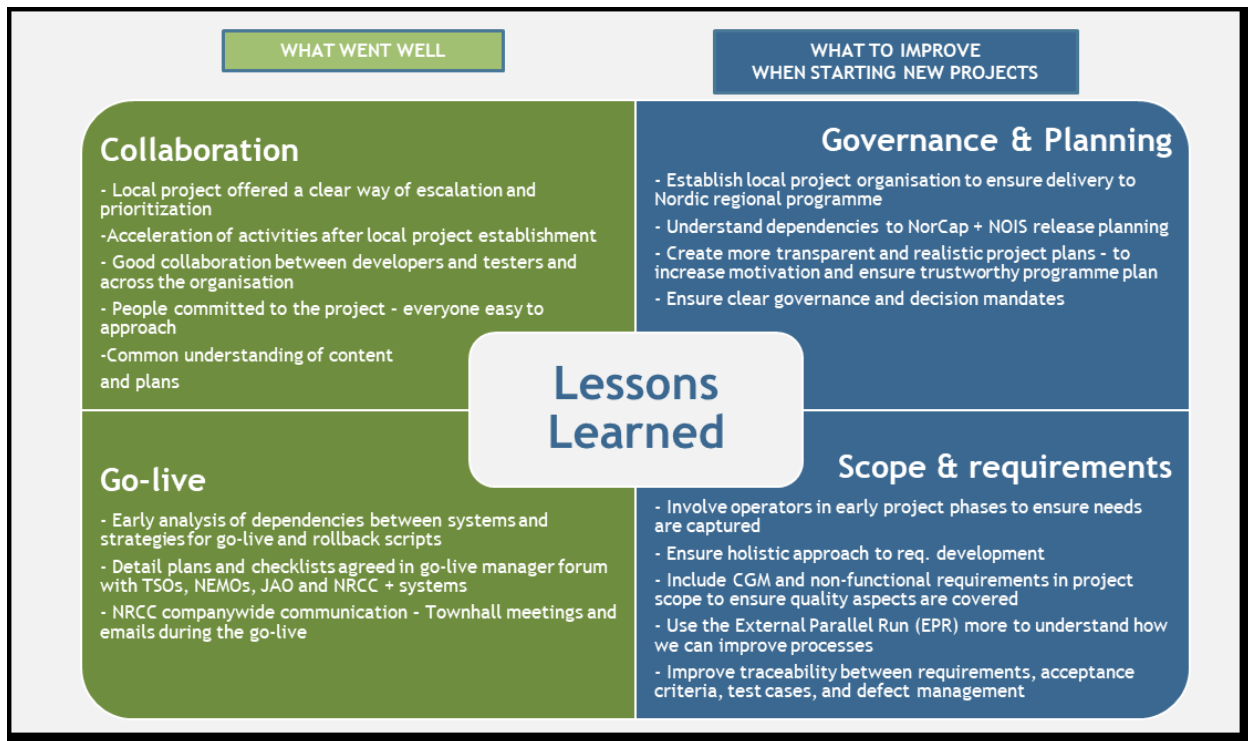
The NRCC has informed us that it will apply the lessons to future projects. According to the NRCC, such lessons already applies to the Long-Term and Intraday Capacity Calculation projects, as well as further implementation of the Co-ordinated Security Analysis (CSA) task.

The NRCC further informs that it applies and will apply various lessons going forward. Accordingly, regional and local projects will be initiated earlier to optimize coordination and identify and mitigate risks earlier on.

The NRCC also informs that the NRCC supports the Nordic project overview for the TSOs, which provides insights into dependencies and increases Nordic coordination.

Overall, the implementation of DA FB and D-2 CGM has significantly increased the experience and knowledge of initiating and running projects in the same scale. The NRCC has clarified that this is the first

Flow-Based capacity calculation project based on a CGMES standard grid model in the World, meaning there was no prior specific experience for the same task to rely on. Accordingly, the process of these projects highly reflects that a significant amount of experience had to be achieved by the NRCC to succeed with the projects. The knowledge the NRCC has gained on processing projects in a similar scale will therefore be applied to similar future projects, making the implementation more effective.

The NRCC further informs that it is dependent on other projects, tools and stakeholders, which to some degree are out of NRCC's control. TSOs have to prioritize between many tasks, apart from regional coordination related tasks, which reflects the priority and thus the initiation of tasks at the NRCC. The NRCC also points out that the potential amendments of CACM 2.0, the Nordic NRA Request for Amendment for the Nordic CCM (Capacity Calculation Methodology), SOGL 2.0, Bidding Zone and CCR (Capacity Calculation Region) all can affect future NRCC-projects and timelines.

Conclusion

NordREG finds that the oversight of the NRCC has been successful. The cooperation between NordREG and NRCC is highly functional and effective.

All oversight questions were replied to in detail by the NRCC and the oversight meeting held at the NRCC on 15 November 2024 was a five-hour long presentation going in detail with all oversight questions.

Based on the NRCC reply to our oversight questions, NordREG notes that the NRCC engages with a quite high number of external consultants (approx. 50 external consultants as per today) compared to permanent employees only being 94 FTEs as per today.

NordREG understands that many consultancy services relates to IT-development and that the NRCC is dependent on using third party IT developers, as the NRCC is an IT-company providing IT-services to its stakeholders.

However, NordREG will ask the NRCC to evaluate and consider opening more positions to avoid being too dependent on and engaging with such a high number of external consultants.

Engaging with external consultants makes the company dependent on external knowledge that is more expensive for the company (which in turn will be reflected in the relevant tariffs). In addition, the external consultants are not protected by Danish employment law, which means that they are not comprised by e.g. termination periods and employment IP provisions, which can put the NRCC at a higher risk.

NordREG will accordingly request the NRCC to provide NordREG with an evaluation of the use of external consultants by the end of 2025 reflecting costs and consultancy tasks compared to permanent employees. NordREG will also ask the NRCC to provide an evaluation of the strategy on new IT-applications focusing on the pros and cons of the NRCC being less dependent on third party developers. The NRCC TF will also require the NRCC to deliver a cyber-security risk evaluation and present it for the NRCC TF in connection with the NRCC TF oversight of 2024.