

# Nordic System Operation Agreement (SOA) – Annex Load-Frequency Control & Reserves (LFCR)

## Appendix 1:

### Regularly changing parameters 2025

**FINGRID**

**ENERGINET**

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| Approval date | Entry into force | Revision   |
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| 26/06/2021    | 26/06/2021       | Initial version  |
| 10/11/2021    | 01/01/2022       | Update with approved figures for 2022  |
| 21/11/2022    | 01/01/2023       | Update with approved figures for 2023  |
| 11/12/2023    | 01/01/2024       | Update with approved figures for 2024  |
| 06/02/2025    | 01/01/2025       | Update with approved figures for 2025.<br>Inclusion of FRCE values for LFC areas.<br>Inclusion of minimum risk levels in dimensioning of mFRR. |
| 13/06/2025    | 01/08/2025       | New FFR sharing key between TSOs.  |

# 1 Introduction

This document is an appendix to the Annex Load-Frequency Control & Reserves (hereafter referred to as LFCR Annex) to the Nordic System Operation Agreement (hereafter referred to as "Nordic SOA"). This appendix provides an overview of approved parameters used by the Nordic TSOs that are changing at least once per year. The document is managed by SOA Maintenance Group who updates this document after an approval of the different parameters in RGN based on proposals from NOG. After the update of the appendix by SOA Maintenance Group, the document is uploaded to the ENTSO-E website, without (another) RGN approval.

The document does not describe the background or calculation of the parameter. For this, the document refers to the relevant article in the Nordic SOA LFCR Annex, the relevant instruction and/or to the specific decision in RGN.

## 2 Regularly changing parameters

This section lists the regularly changing parameters related to the Nordic Load Frequency Control and Reserves processes as described in Part IV of the System Operation Guideline (SOGL), the Nordic SOA LFCR Annex, the related NRA approved methodologies and the NOG approved operational instructions.

Table 1: FRCE target parameters for Nordic LFC block based on the maximum number of minutes outside the standard frequency range specified in section 3.4.2 of the Nordic SOA LFCR Annex (15 000 minutes/year outside the standard frequency range). (Calculated in accordance with SOGL art. 128 and 131.b, SOA/LFCR Annex section 3.4.3 and Operational Instruction LFCR302)

| Parameter  | Value         | Validity period | Approved by       |
|--|---------------|-----------------|-------------------|
| <b>FRCE target level 1, target</b><br>(30% of 15 minutes time intervals per year may be outside this FRCE) | <b>38 mHz</b> | 2025            | RGN on 11-12-2024 |
| <b>FRCE target level 2, target</b><br>(5% of 15 minutes time intervals per year may be outside this FRCE)  | <b>72 mHz</b> | 2025            | RGN on 11-12-2024 |

Table 2: FRCE target parameters for Nordic LFC block based on the aimed frequency quality specified in section 3.4.2. (10 000 minutes/year outside the standard frequency range). (Calculated in accordance with SOGL art. 128 and 131.b, SOA/LFCR Annex section 3.4.3 of the Nordic SOA LFCR Annex and Operational Instruction LFCR302)

| Parameter  | Value         | Validity period | Approved by       |
|--|---------------|-----------------|-------------------|
| <b>FRCE target level 1, target</b><br>(30% of 15 minutes time intervals per year may be outside this FRCE) | <b>34 mHz</b> | 2025            | RGN on 11-12-2024 |
| <b>FRCE target level 2, target</b><br>(5% of 15 minutes time intervals per year may be outside this FRCE)  | <b>64 mHz</b> | 2025            | RGN on 11-12-2024 |

Table 3: FRCE target parameters for Nordic LFC areas based on the aimed frequency quality specified in section 3.4.2. (15 000 minutes/year outside the standard frequency range). (Calculated in accordance with SOGL art. 128 and 131.b, SOA/LFCR Annex section 3.4.3 of the Nordic SOA LFCR Annex and Operational Instruction LFCR302)

| LFC Area | FRCE – level 1 | FRCE – level 2 | Validity period | Approved by       |
|----------|----------------|----------------|-----------------|-------------------|
| DK2      | 31 MW          | 77 MW          | 2025            | RGN on 11-12-2024 |
| FI       | 103 MW         | 196 MW         |                 |                   |
| NO1      | 62 MW          | 117 MW         |                 |                   |
| NO2      | 78 MW          | 148 MW         |                 |                   |
| NO3      | 59 MW          | 112 MW         |                 |                   |
| NO4      | 55 MW          | 105 MW         |                 |                   |
| NO5      | 57 MW          | 108 MW         |                 |                   |
| SE1      | 49 MW          | 92 MW          |                 |                   |
| SE2      | 67 MW          | 127 MW         |                 |                   |
| SE3      | 105 MW         | 198 MW         |                 |                   |
| SE4      | 46 MW          | 88 MW          |                 |                   |

Table 4: FRCE target parameters for Nordic LFC areas based on the aimed frequency quality specified in section 3.4.2. (10 000 minutes/year outside the standard frequency range). (Calculated in accordance with SOGL art. 128 and 131.b, SOA/LFCR Annex section 3.4.3 of the Nordic SOA LFCR Annex and Operational Instruction LFCR302)

| LFC Area | FRCE – level 1 | FRCE – level 2 | Validity period | Approved by       |
|----------|----------------|----------------|-----------------|-------------------|
| DK2      | 37 MW          | 69 MW          | 2025            | RGN on 11-12-2024 |
| FI       | 92 MW          | 174 MW         |                 |                   |
| NO1      | 55 MW          | 104 MW         |                 |                   |
| NO2      | 70 MW          | 131 MW         |                 |                   |
| NO3      | 53 MW          | 100 MW         |                 |                   |
| NO4      | 49 MW          | 93 MW          |                 |                   |
| NO5      | 51 MW          | 96 MW          |                 |                   |
| SE1      | 44 MW          | 82 MW          |                 |                   |
| SE2      | 60 MW          | 113 MW         |                 |                   |
| SE3      | 94 MW          | 176 MW         |                 |                   |
| SE4      | 41 MW          | 78 MW          |                 |                   |

Table 5: Dimensioning of FCR and initial distribution of FCR (SOGL art. 153/154, SOA/LFCR Annex section 6.4.1 to 6.4.4, Operational Instructions LFCR601 and LFCR602)

| Parameter   | Value         | Validity period | Approved by       |
|---|---------------|-----------------|-------------------|
| <b>Dimensioning Nordic FCR-N</b>                              | <b>600 MW</b> | 2025            | RGN on 15-08-2019 |
| <b>Dimensioning Nordic FCR-D</b>                              |               | Updated daily   |                   |
| <b>Initial distribution of FCR<br/>(both FCR-N and FCR-D)</b> |               |                 |                   |
| - <b>Denmark/East (DK2)</b>                                   | <b>3 %</b>    | 2025            | RGN on 23-10-2024 |
| - <b>Finland</b>  | <b>21 %</b>   |                 |                   |
| - <b>Norway</b>   | <b>39 %</b>   |                 |                   |
| - <b>Sweden</b>   | <b>37 %</b>   |                 |                   |

Table 6: Dimensioning of FRR and initial distribution of FRR (SOGL art. 157, SOA/LFCR Annex section 7.4.2)

| Parameter                           | Value                                | Validity period   | Approved by       |
|-------------------------------------|--------------------------------------|---|-------------------|
| <b>Dimensioning of mFRR</b>         | <b>National TSOs' responsibility</b> |   |                   |
| <b>aFRR operating hours</b>         |                                      | Determined frequently   |                   |
| <b>Dimensioning of aFRR</b>         | <b>≥ 200MW</b>                       | Determined frequently   |                   |
| <b>Initial distribution of aFRR</b> | <b>Up    Down</b>                    |   |                   |
| - <b>Denmark/East (DK2)</b>         | <b>13 %    13 %</b>                  | Until changed by new RGN decision.<br>Updated from startup Nordic aFRR CM 07-12-2022. | RGN on 21-11-2022 |
| - <b>Finland</b>                    | <b>15 %    16 %</b>                  |   |                   |
| - <b>Norway</b>                     | <b>46 %    43 %</b>                  |   |                   |
| - <b>Sweden</b>                     | <b>26 %    28 %</b>                  |   |                   |

Table 7: Dimensioning of FFR and initial distribution of FFR (SOGL art. 39, SOA/LFCR Annex section 13.4.3, Operational Instructions LFCR1301)

| Parameter                   | Value               | Validity period | Approved by       |
|-----------------------------|---------------------|-----------------|-------------------|
| <b>Dimensioning of FFR</b>  |                     | Updated daily   |                   |
| <b>Sharing key for FFR</b>  | <b>Equal to FCR</b> |                 |                   |
| - <b>Denmark/East (DK2)</b> | <b>3 %</b>          | 2025            | RGN on 13-06-2025 |
| - <b>Finland</b>            | <b>21 %</b>         |                 |                   |
| - <b>Norway</b>             | <b>39 %</b>         |                 |                   |
| - <b>Sweden</b>             | <b>37 %</b>         |                 |                   |

Table 8: Agreed minimum risk level for dimensioning of mFRR.

| Upwards     | Downwards   | Validity period                   | Approved by |
|-------------|-------------|-----------------------------------|-------------|
| <b>90 %</b> | <b>80 %</b> | Until changed by new RGN decision | RGN         |