## Overview of the Requirements on Reserves

### FCR-Normal
- **Minimum bid size:** 0.1 MW
- **Activation:** Automatically at a frequency deviation within the range 49.90 – 50.10 Hz
- **Activation time:** 63% within 60 sec. and 100% within 3 min.
- **Volume requirement:** approx. 200 MW for Sweden
- **General requirements:**
  - Approved prequalification
  - Real-time measurement
  - Electronic communication
  - Endurance
- **Miscellaneous:**
  - Symmetric product capable of managing upward and downward regulation

### FCR-Disturbance
- **Minimum bid size:** 0.1 MW
- **Activation:** Automatically at a frequency deviation below 49.90 Hz
- **Activation time:** 50% within 5 sec. and up to 100% within 30 sec.
- **Volume requirement:** approx. 400 MW for Sweden
- **General requirements:**
  - Approved prequalification
  - Real-time measurement
  - Electronic communication
  - Endurance

### aFRR (automatic)
- **Minimum bid size:** 5 MW
- **Activation:** Automatically through a central control signal if the frequency deviates from 50.00 Hz.
- **Activation time:** 100% within 120 sec.
- **Volume requirement:** approx. 150 MW in Sweden
- **General requirements:**
  - Approved prequalification
  - Real-time measurement
  - Electronic communication
  - Endurance

### mFRR (manual)
- **Minimum bid size:** 10 MW (5 MW in SE4)
- **Activation:** Manually at the request of Svenska kraftnät
- **Activation time:** within 15 min\(^1\)
- **General requirements:**
  - Approved prequalification
  - Real-time measurement\(^2\)
  - Electronic communication
  - Endurance

### FCR-Normal (disturbance)
- **Minimum bid size:** 0.1 MW
- **Activation:** Automatically at a frequency deviation below 49.90 Hz
- **Activation time:** 50% within 5 sec. and up to 100% within 30 sec.
- **Volume requirement:** approx. 400 MW for Sweden
- **General requirements:**
  - Approved prequalification
  - Real-time measurement
  - Electronic communication
  - Endurance

### FCR-Disturbance (normal)
- **Minimum bid size:** 0.1 MW
- **Activation:** Automatically at a frequency deviation below 49.90 Hz
- **Activation time:** 50% within 5 sec. and up to 100% within 30 sec.
- **Volume requirement:** approx. 400 MW for Sweden
- **General requirements:**
  - Approved prequalification
  - Real-time measurement
  - Electronic communication
  - Endurance

### FCR-Disturbance (disruption)
- **Minimum bid size:** 0.1 MW
- **Activation:** Automatically at a frequency deviation below 49.90 Hz
- **Activation time:** 50% within 5 sec. and up to 100% within 30 sec.
- **Volume requirement:** approx. 400 MW for Sweden
- **General requirements:**
  - Approved prequalification
  - Real-time measurement
  - Electronic communication
  - Endurance

### Miscellaneous:
- Symmetric product capable of managing upward and downward regulation

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See the [Balance Responsibility Agreement and associated regulatory documents](#) for detailed information about the requirements in force

1. Prolonged activation time permitted
2. At ≤ 15 min. activation time
3. The Balance Responsible Agreement and associated appendices are only found in Swedish at the moment