

Aggregation in electricity markets

General information

6/2026

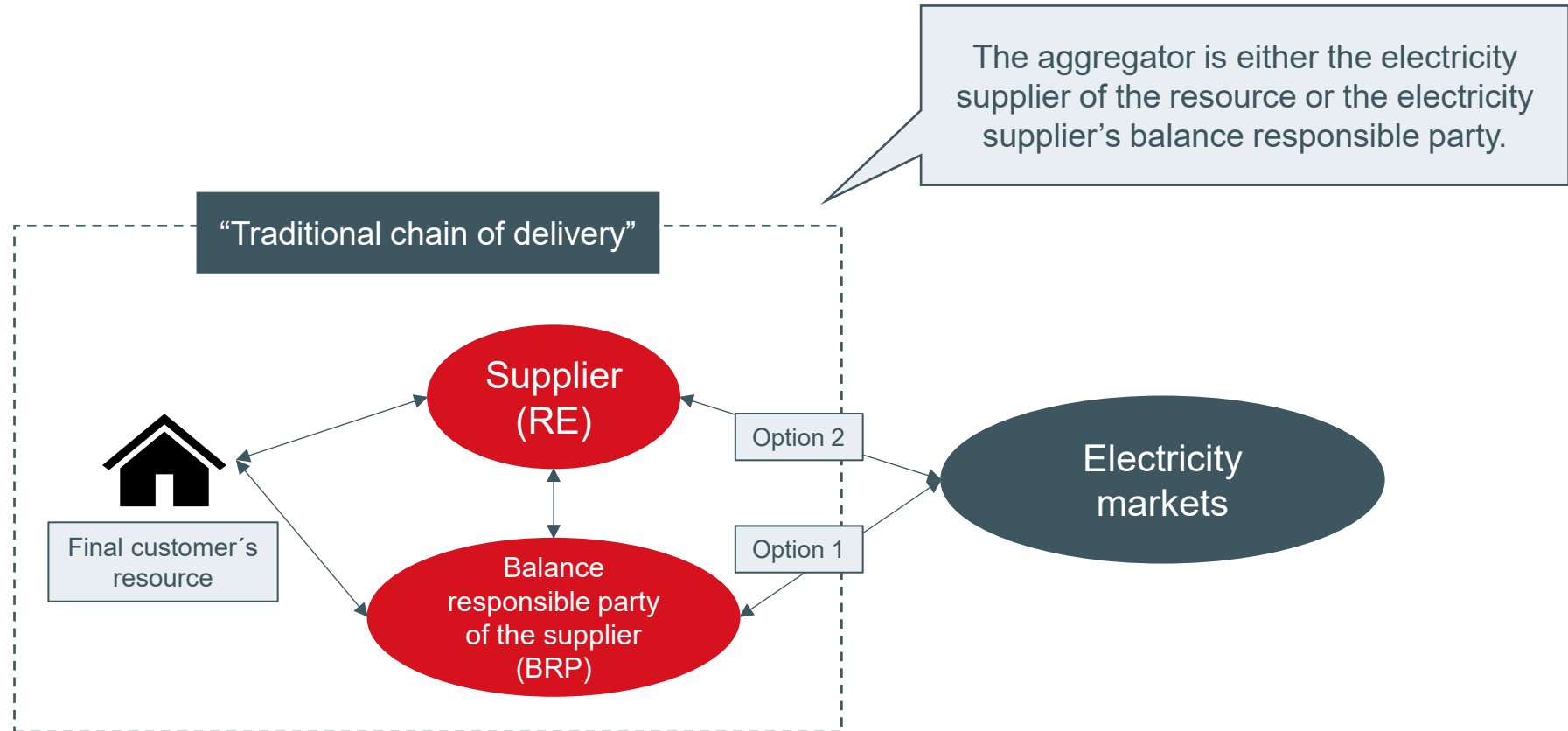
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Aggregation models

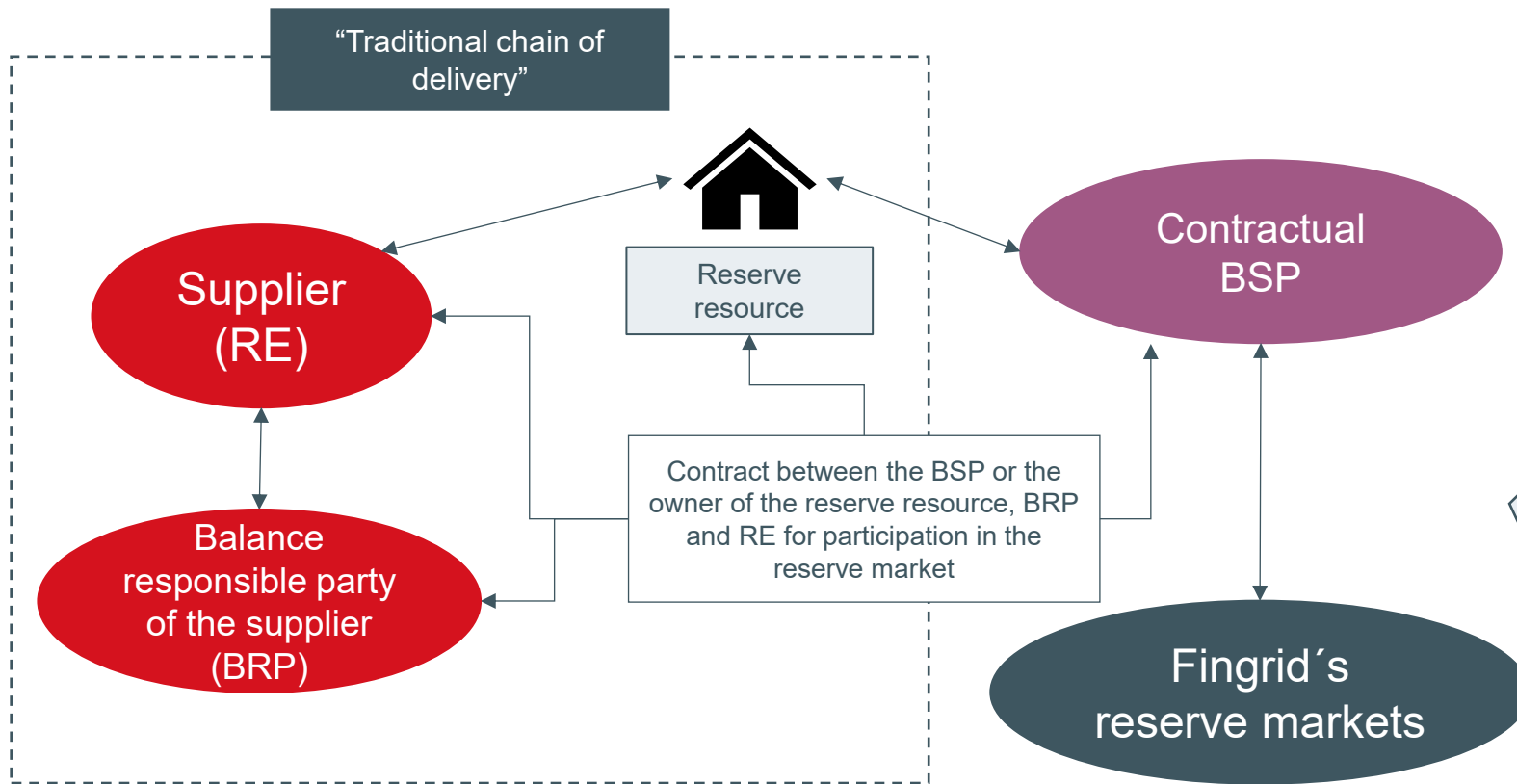
Aggregation

- Aggregation is referred to in the Electricity Market Act (588/2013) as an activity that combines several system users' loads or electricity production for sale, purchase, or auction in the electricity market
- Three ways to aggregate flexibility
 - 1. Aggregation within the traditional chain of delivery with resources from one's own balance
 - Traditionally aggregation has meant aggregation of resources within the traditional chain of delivery, i.e. the aggregator acts as the supplier or the balance responsible party of the resource
 - Aggregation is currently allowed in all marketplaces in the traditional chain of delivery
 - 2. Aggregation as a contractual balancing service provider
 - A model in Fingrid's reserve markets, where the aggregator / owner of the resource has a contract with the supplier and the balance responsible party of the resource
 - 3. Independent aggregation
 - An aggregator, that does not have a contract with the supplier or balance responsible party of the resource. Independent aggregation is currently allowed in most of Fingrid's reserve markets.
- An independent aggregator and a contractual balancing service provider aggregate reserve resources outside of the traditional chain of delivery

1) Aggregation within the traditional chain of delivery



2. Aggregation as a contractual balancing service provider (BSP)

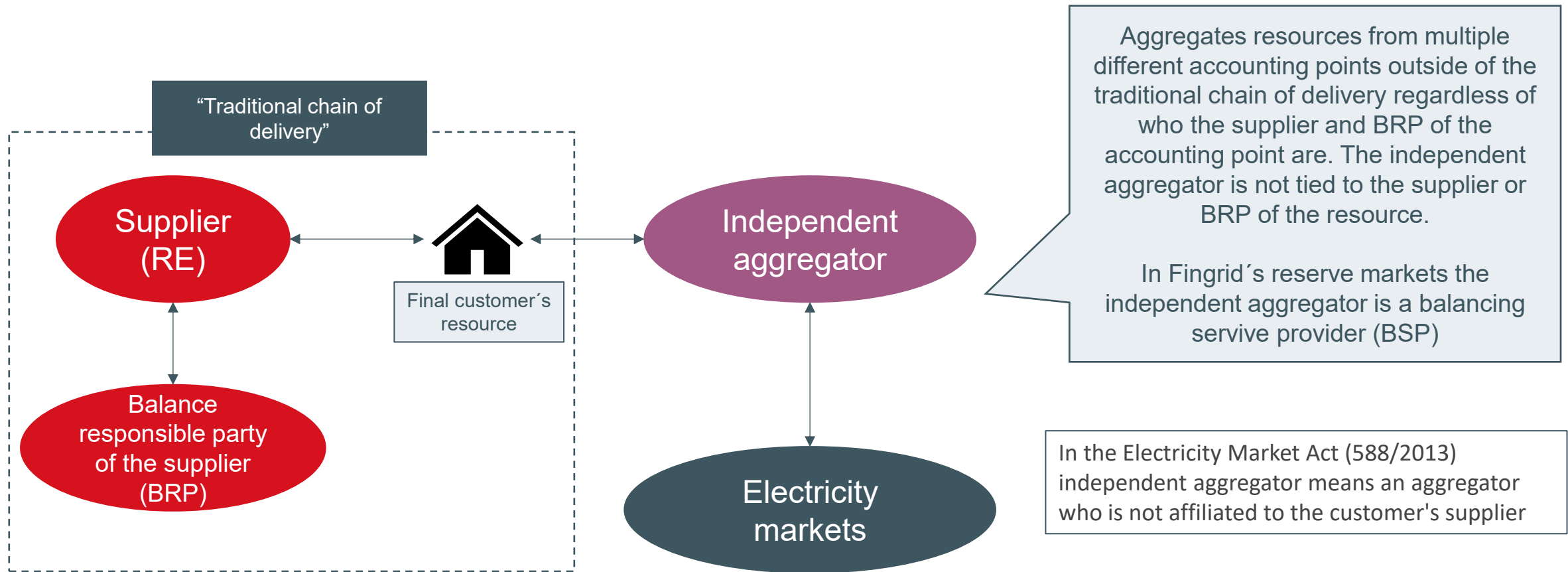


A contractual BSP aggregates reserve resources outside the traditional chain of delivery regardless of who the retailer or BRP of accounting point is. The BSP or the owner of the reserve resource shall contractually agree with the BRP and the RE on the reserve resource's participation in the reserve market. The contractual BSP can aggregate reserve resources from different chains of delivery.

The independent aggregation compensation model does not apply to contractual balancing service providers, as they are not independent aggregators.

Aggregation as a contractual balancing service provider is possible in all reserve products. For mFRR and aFRR products, information on the existence of the contract must be submitted to Fingrid.

3. Independent aggregation (IA)



Currently independent aggregation is allowed in FCR-N, FCR-D, FFR and aFRR

Contractual BSP vs. independent aggregator aFRR

Contractual BSP

Contracts

- **Contract between balance responsible party (BRP) – retailer (RE) – BSP / owner of the reserve resource** on participation in the reserve market. BSP needs to provide information to Fingrid confirming that a contract between the parties exists.

Responsibility of regulation imbalances (difference between activated and delivered balancing energy)

- BRP is responsible for regulation imbalances caused by a contractual BSP. Regulation imbalances are subject to imbalance costs in the imbalance settlement of the BRP.

Compensation model

- Compensation model of independent aggregation not applied by Fingrid since contractual BSP is not an IA

→ BRP – RE – BSP / owner of the reserve resource agree bilaterally how necessary information exchange, regulation imbalances and potential compensations are handled between BRP – RE – BSP / owner. More information: [Contractual aggregation – points to consider](#) and [Notification of agreed Reserve Resource's reserve use](#)

Independent aggregator

Contracts

- **No contracts between BRP – RE – IA**

Responsibility of regulation imbalances

- IA is responsible for regulation imbalances it causes. Regulation imbalances are subject to imbalance costs.

Compensation model

- Compensation payment between the BRP and independent aggregator (IA) according to the compensation model (handled centrally in eSett). Reference price is the Day-Ahead Market price in the Finnish bidding zone. More information: [Independent Aggregation compensation model calculation method](#)

Aggregation in Fingrid's reserve markets

Aggregation in Fingrid's reserve markets

| Reserve | Prequalification on test | Minimum bid size | Aggregation from one balance | Aggregation from several balances | Independent aggregation | Requirements for aggregation |
|--------------|--------------------------|------------------|--|--|-------------------------|---|
| FFR | Yes | 1 MW | Yes | Yes | Yes | - |
| FCR-D | Yes | 1 MW | Yes | Yes | Yes | - |
| FCR-N | Yes | 0,1 MW | Yes | Yes | Yes | Up and down-regulation is possible from different balances. Regulation is symmetrical, and resources regulating in the same direction are within the same balance. |
| aFRR | Yes | 1 MW | Yes | Yes | Yes | The Delivered Balancing Energy message is sent to eSett if aggregation is performed across multiple balances (excluding fixed allocation shared power plants) or as an IA |
| mFRR | No | 1 MW | Yes (in the same transmission area) | Yes (in the same transmission area) | No | One BRP per regulation object. Balances are separated in energy market sub-bids. |

Aggregated reserve resources may consist of generation, consumption, or energy storage.

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Independent aggregation (IA) in Fingrid's reserve markets

FCR-D and FFR

Uncorrected model

- FCR-D: Independent aggregation allowed since 1st January 2017
- FFR: Independent aggregation allowed since 12th May 2020
- Minimum bid size: 1 MW
- **Fees**
 - Capacity fee to the balance service provider (BSP)
- **Imbalance adjustment**
 - No imbalance adjustment (activation has low impact on energy)

FCR-N

Imbalance adjustment, no financial transfer

- Independent aggregation allowed since 1st January 2018
- Minimum bid size: 0.1 MW
- **Fees**
 - Capacity fee to the balance service provider (BSP)
 - Energy fee to the BSP
- **Imbalance adjustment**
 - Imbalance adjustment is done towards the BRP of the reserve resource based on formula presented in FCR-N terms and conditions

aFRR

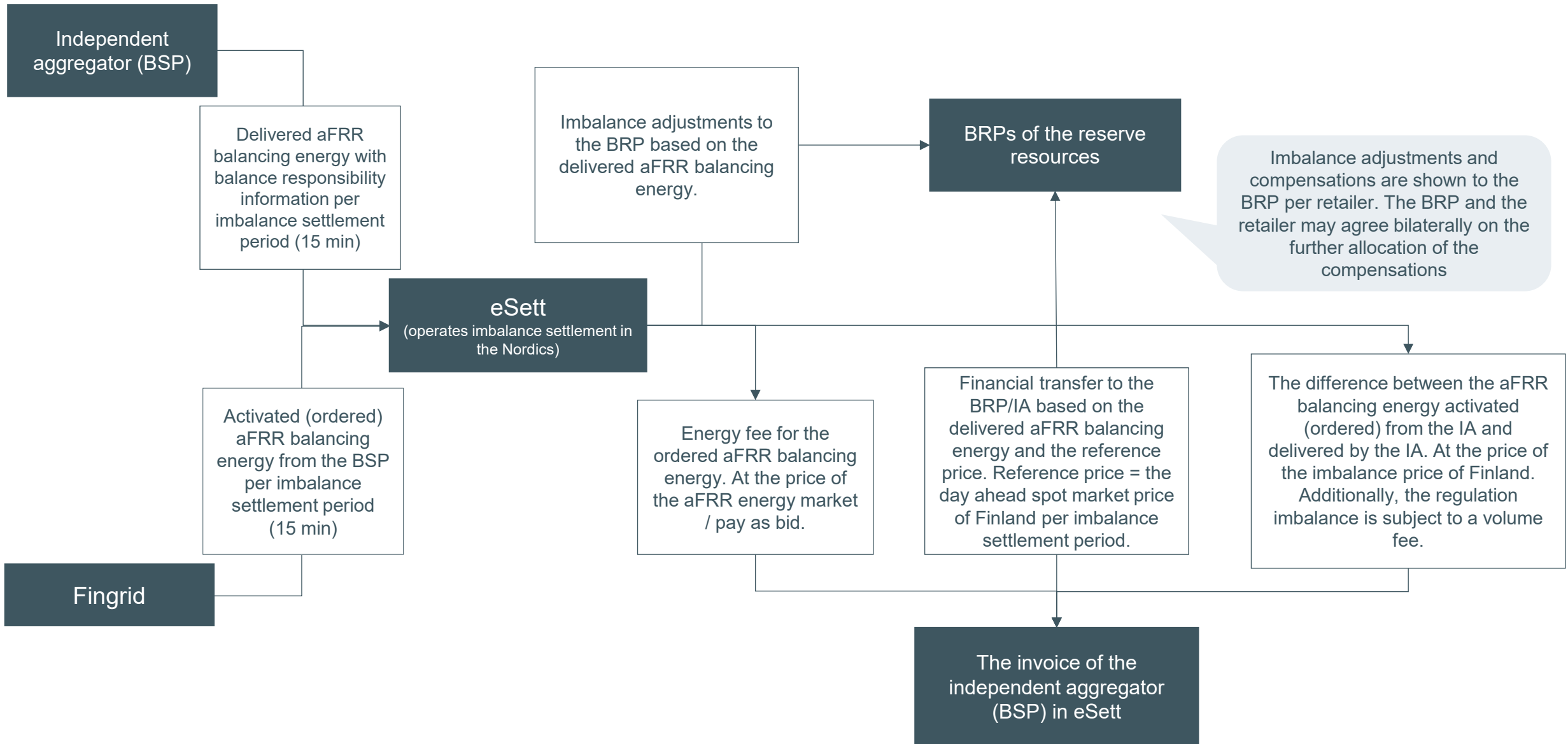
Central settlement

- Independent aggregation allowed since 5th June 2025
- Minimum bid size: 1 MW
- **Fees**
 - aFRR capacity fee to the BSP
 - Energy fee to the BSP
 - Financial transfer between the BRP of the resource and the IA according to financial transfer model (handled centrally in eSett). Reference price is the Day-Ahead Market price in the Finnish bidding zone. Financial transfers are shown to BRP on retailer level in eSett.
- **Imbalance adjustment**
 - Imbalance adjustment towards the BRP of the reserve resource based on delivered energy
- Independent aggregator does not have a BRP. Independent aggregator is financially responsible of the regulation imbalances (difference between activated and delivered energy) it causes.

FCR-D, FFR, FCR-N: Requirements and model is the same regardless whether the BSP is the BRP/retailer of the resource, a contractual BSP (broker model) or an independent aggregator.

Independent aggregation is currently not possible in mFRR, day-ahead market and intraday market

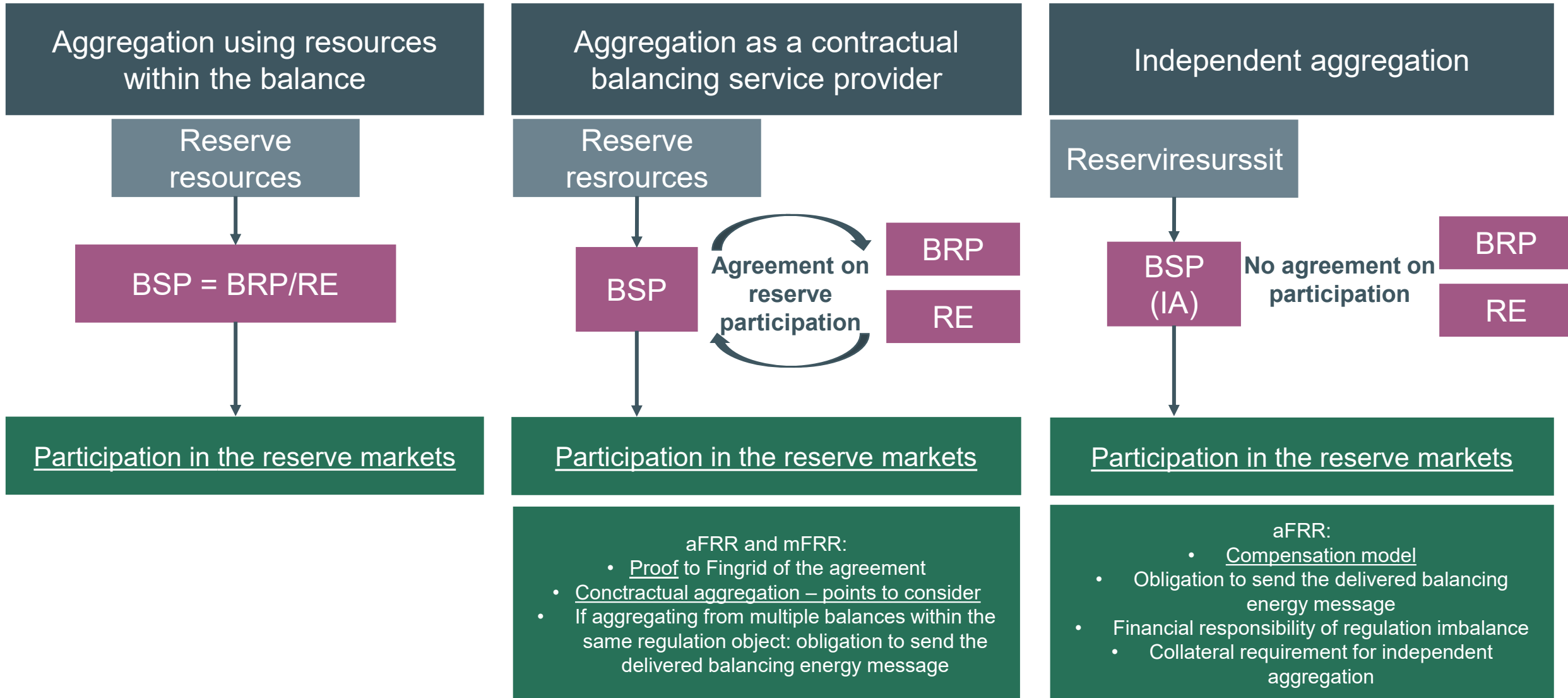
Central settlement independent aggregation model (aFRR)



In the currently used Finnish terminology, the concept of financial transfer is referred to as "compensation fee" and "IA compensation model". Additional information on the compensation model: [independent aggregation compensation model calculation method](#)

Participation in Fingrid's reserve markets

Aggregator Participation in Reserve Markets



aFRR and mFRR:

- Proof to Fingrid of the agreement
- Contractual aggregation – points to consider
- If aggregating from multiple balances within the same regulation object: obligation to send the delivered balancing energy message

aFRR:

- Compensation model
- Obligation to send the delivered balancing energy message
- Financial responsibility of regulation imbalance
 - Collateral requirement for independent aggregation

BSP = balancing service provider, BRP = balance responsible party, RE = supplier, IA = independent aggregator

Legislation

Legislation process of independent aggregation

