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BESS Contracts & Regulatory Overview (Part 1)

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Overview of the most important considerations regarding Dutch electricity regulation for Battery Energy Storage Systems (BESS) operators:

- Securing transport capacity
- Legal relationship with the grid operator
- Regulatory restraints for creating electrical connections

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1. Securing transport capacity

The (new) Energy Act (*Energiewet*) defines four key concepts in electricity regulation for BESS: system, connection, installation, and connected party.

A system is the regulated grid infrastructure (transmission ≥110 kV, distribution <110 kV), while a connection links this system to properties, other systems, or offshore installations.

The connected party is the user authorized to access the grid through a Connection and Transmission Agreement (CTA) with the grid operator (TSO/DSO). The CTA includes the Contracted Transport Capacity (CTC).

Installations, equipment beyond the grid connection, are unregulated but cannot serve third parties unless under specific exceptions.

A major change introduced by the Energy Act is that the obligation to offer a grid connection is dependent on available transport capacity. If capacity is unavailable, the grid operator may delay the offer, diverging from the earlier Electricity Act.

Due to increasing electricity demand, grid congestion is a growing issue. Congestion means that total contracted peak capacity has reached grid limits, though actual usage peaks occur infrequently.

To manage this, grid operators can offer flexible contracts and Alternative Transmission Rights (ATR), including:

- Firm rights (guaranteed anytime)
- Non-firm rights (only during off-peak)
- Time-based rights (85% availability, with 15% curtailment)
- Time-block rights (specific off-peak blocks only)

➢ Congestion and grid access

In congestion areas, grid operators cannot issue requests for CTC unless capacity is freed. Since October 2024, priority access is available for certain sectors (e.g., security, healthcare, congestion mitigators like qualifying BESS systems). This framework was meant to override the typical first-come, first-served rule, but has been annulled and is waiting for the ACM to create a new framework.

➢ Congestion management tools

Congestion management strategies aim to optimize limited grid capacity and ensure access for high-priority and flexible users, especially as electrification and renewable integration continue to accelerate.

Congestion management tools include:
Market-based and non-market-based capacity rules
Capacity reduction contracts (*capaciteitsbeperkingscontract*(CBC)): optional waivers of firm rights during congestion in return for compensation
Redispatch: system operators request changes to planned energy flows, mandatory for users with over 60 MW CTC
UIOLI (Use It Or Lose It): reclaiming unused capacity if consistently underutilized.

2. Legal relationship between BESS and grid operator

BESS-operators interact with the electricity grid through multiple market roles and contracts governed by Dutch and European regulation. The national grid operator, TenneT, is responsible for maintaining grid balance and frequency (50 Hz). Imbalances, due to mismatches between electricity supply and demand, can cause significant disruptions, including blackouts.

To manage this, market roles are defined:

Balance Responsible Party (BRP): financially accountable for matching electricity feed-in and off-take within 15-minute intervals (imbalance settlement periods, ISP). A BRP must forecast energy flows, apply for recognition by TenneT, and provide financial security (e.g., bank guarantees).

Balancing Service Provider (BSP): supplies balancing energy/capacity to TenneT to correct unforeseen imbalances. BESS-operators can act as BSPs and must prequalify for each balancing product, sign framework agreements with TenneT, and ensure technical and operational compliance, including capacity availability, response time, and transparency. Key balancing products include:

- FCR (Frequency Containment Reserve): automatic, fast-acting capacity (within 30 sec), with bids submitted daily for four-hour blocks.
- aFRR (Automatic Frequency Restoration Reserve): activated within 15 minutes via control signals; involves daily blind auctions and bid obligations.
- mFRR (Manual Frequency Restoration Reserve): manually activated for longer-term imbalances, requiring always-available capacity.

Congestion Service Provider (CSP): helps alleviate regional grid congestion via location-specific redispatch bids. Prequalification is required.

BESS can be used to participate in wholesale and balancing markets, especially leveraging price spreads in the day-ahead market and balancing market services (FCR and mFRR are best suited to BESS due to their fast response).

The European regulation REMIT ensures market transparency and prohibits insider trading, applying also to BESS market participants.

Sanctions apply for BSP non-performance:

- For FCR, unavailability or inadequate response leads to compensation based on duration, missing capacity, and market prices.
- For aFRR, inadequate response incurs penalties per ISP or full-day compensations if repeated, and TenneT may submit bids on behalf of the BSP (charging €2,500/day).

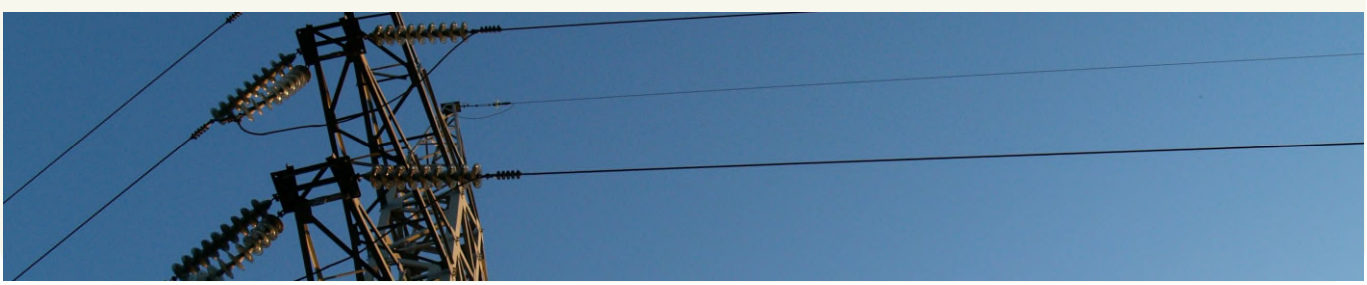
These penalties are typically not insurable.

3. Regulatory restraints for creating electrical connections

Under Dutch law, any electrical infrastructure beyond the official **transfer point**, which separates the grid operator's system from a private installation, must comply with strict regulations. Only licensed **grid operators** are permitted to operate electrical systems. If multiple users share electricity beyond a transfer point without proper exemptions, this may constitute an **illegal grid**, which must then (in principle) be transferred to the regional grid operator. While ensuring safety and reliability, this rigid legal structure limits flexibility, especially problematic amid growing **grid congestion**.

The new Energy Act maintains this restrictive framework but introduces new tools that allow more flexible electricity-sharing arrangements "behind the transfer point," also relevant for BESS. Key mechanisms include:

- **Closed Distribution Systems (CDS)**: A CDS is a privately owned and operated grid within a geographically contained commercial or industrial site. CDS operators must obtain an exemption from the ACM and may not serve household consumers. CDSs are common in large energy projects like solar and wind farms and can include BESS. While privately operated, CDSs must meet lighter versions of network management obligations ("system management light").
- **Direct Line**: A direct line connects a power producer directly to one or more consumers. It can only connect to the grid at a single point (either the producer or consumer side) and is unregulated, provided it is registered with the ACM. This setup enables off-grid trading between specific parties without creating a grid.
- **Cable Pooling**: Cable pooling allows multiple owners of installations to share one grid connection. Initially designed for adjacent wind and solar farms, the new Energy Act expands its use to include storage and consumption facilities like BESS, under conditions: physical proximity of installations, a joint grid connection agreement, minimum connection size of 100 kVA, and a maximum of four WOZ-registered properties. This tool enables more efficient grid use, especially where new connections are unavailable, but requires careful legal and operational coordination between the parties.
- **Energy Hubs**: Though not formally regulated (yet), energy hubs represent a promising concept where multiple parties share grid capacity without violating grid rules. These hubs function through customized agreements with the grid operator (such as a group transmission agreement) and aim to balance usage by leveraging complementary demand profiles. BESS can enhance the efficiency of energy hubs by storing excess electricity and supplying it when needed.



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