

Client:

~ Immediate Compliance with April 2026 Regulatory Reforms & Overcoming Grid Constraints via BESS ~

Next-Generation AI Data Center Development
&
Grid Connection Strategy Consulting
Proposal in Japan

Date: April 2026
National Brains Inc.
Naoki Kazama, Representative Director

Chapter 1: Executive Summary — Tectonic Shifts in Japan's DC Market (2026)

- **Current Market Analysis:** As Generative AI transitions into the full-scale "Inference" phase, power consumption by domestic data centers (DCs) in Japan is surging rapidly, reaching approximately 3% of total national electricity demand (doubling from 1.5% in 2021).
- **Strategic Shift:** The decisive critical success factor in DC development has fundamentally shifted from traditional "securing real estate/land" to "**securing power grid capacity and advanced cooling capabilities (liquid cooling).**"

Chapter 2: The "4 Major Bottlenecks" Impeding New DC Construction in Japan & Risk Assessment

2-1. Power Grid Connection "10-Year Queue" and Capacity Speculation

Extreme geographical concentration persists in specific regions (Tokyo Metropolitan Area, Inzai City in Chiba, etc.), hosting nearly 80% of domestic DCs. In the Inzai cluster alone, grid interconnection queues have reached 40 pending projects totaling 2.5 GW, creating a structural bottleneck with connection lead times stretching to 6–10 years.

2-2. [Effective April 1, 2026] Impact of Grid Access Rule Changes on Financials & Planning

To eliminate capacity hoarding ("phantom projects"), **interconnection guarantee deposits were doubled from 5% to 10%** effective April 2026.

Furthermore, **stricter installment payment rules for construction contributions (requiring an initial payment of 50% or more)** dramatically front-load early-stage cash outflows, making immediate financial risk mitigation imperative.

2-3. GPU Server Extreme Density ("Cooling Density Wall") & Revised Energy Conservation Act

With the adoption of next-generation GPUs (such as the NVIDIA Blackwell architecture), thermal density per rack is skyrocketing to 100 kW–120 kW, rendering conventional air cooling (5–10 kW) obsolete. Direct Liquid Cooling (DLC) is becoming mandatory, requiring new DCs to meet the revised Energy Conservation Act compliance benchmark of "PUE 1.2 or lower."

2-4. Local Friction from Building Standards Act "Office" Classification & "Secrecy" Barriers

Due to regulatory gaps, industrial-scale DC facilities are legally classified as "Office Buildings," leading to widespread local friction when built near residential areas. Community opposition and lawsuits have emerged over noise (chillers/generators), heat island effects, and visual impact (e.g., Hino, Saitama, Inzai, Shiroy). DC security-driven secrecy risks compounding local distrust; utilizing programs like the Tokyo Metropolitan Guidelines (subsidies up to JPY 1.5 Billion) is crucial.

Chapter 3: Grid Strategy & BESS Integration to Break Bottlenecks

3-1. Achieving Global PPA Mandates: "24/7 Carbon-Free Energy (CFE)"

To fulfill global hyperscaler requirements for 24/7 real-time renewable procurement (24/7 CFE), developing hybrid energy supply models combining renewable generation with large-scale Battery Energy Storage Systems (BESS) has become essential.

3-2. Leveraging "Latest Grid Rules" to Bypass Transmission Queue Delays

- **Additional Early Connection Measures (Charging Restrained Type):** By agreeing to charging curtailment conditions (up to 12 hours/day), developers can bypass multi-year or decade-long main grid reinforcement delays to achieve early connection.
- **Large-Demand Capacity Release Rules:** Monitoring and capturing capacity forcibly revoked/released under non-execution penalty frameworks (formal discussions initiated April 2026).

3-3. Regional Decentralization (Hokkaido, Kyushu, Kansai Hubs) Site Optimization

Driven by the "Vision for a Digital Garden City Nation," regional decentralization is accelerating. Site optimization simulations evaluate locations like "Ishikari, Hokkaido" (boasting an annual average PUE of 1.19 via free-air cooling) and "Kansai Interconnection Hubs" (Ibaraki, Minoh, Keihanna, etc.), featuring abundant grid margin and BESS alignment.

Chapter 4: Consulting Support Approach (3-Phase Framework)

Phase 1: Strategic Assessment

Strategic Feasibility Assessment
(Duration: Approx. 4 Weeks)

In-depth review of land rights, grid response letters, and structural analysis of lead-time drivers (bulk transmission constraints, queue queuing, EPC resources, etc.).

Phase 2: Strategy Design

Detailed Assessment & Strategy Design

Technical expert reviews, regulatory validation, and crafting customized counter-proposals (playbooks) leveraging new grid rules (charging curtailment, etc.).

Phase 3: Execution Support

Implementation & Stakeholder Engagement

Direct representation and meeting support with utilities (TEPCO PG), OCCTO, METI/ANRE, and local government authorities.

Chapter 5: Support Structure & Next Steps

【Execution Structure】

End-to-end advisory led by senior specialist advisors (former METI senior officials, policy/regulatory experts) and a dedicated engineering team well-versed in Japan's power grid architecture.

【Immediate Next Steps】

1. Execution of Non-Disclosure Agreement (NDA)
2. Disclosure of existing grid interconnection response letters and project documents / Commencement of initial assessment

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