

Taiho Bosai Co., Ltd. — Part 2: Why We Chose Not to Use High-Voltage Service

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Overview

Instead of assuming high-voltage service, the project separated seasonal and base loads. GHP air conditioning, a 25 kW cap and low-voltage service preserved future operating flexibility. This case documents the decision through the actual RFP and operation.

Case Answer

Do not select the receiving-service method first; separate the loads, then make low-voltage service work

For the new headquarters, the receiving-service method was not selected from the maximum load including air conditioning. The first condition was instead: “ Can electricity use be reduced in the future? ” If equipment is sized around EHP air conditioning and maximum demand, high-voltage service becomes a natural choice. Once selected, however, receiving equipment, inspections, contracts and operating costs become long-term fixed conditions.

The project therefore separated air conditioning as a seasonal load and all other demand as base load. Air conditioning was changed to GHP so it could also be used during disasters. Electrical equipment capacity was capped at 25 kW, with normal operation designed around approximately 12–13 kW, allowing the building to remain on low-voltage service.

The rooftop solar array was designed to cover the base load, with LPG generation supplying any shortfall. Because of the responsibility boundary, the flat-roof solar installation was completed as owner-side work after handover using a method that did not damage the waterproofing layer.

The important point is not whether high- or low-voltage service is inherently better. Before deciding the receiving method, the RFP should state the nature of the loads, the potential for future reduction, responsibility boundaries, outdoor environmental conditions and operating requirements during disasters. This case selected the receiving method from future operating flexibility rather than equipment capacity alone.

Scope

- Facilities evaluating the receiving-service method for new construction or major renewal
- Projects that want to design the power architecture from the load profile instead of assuming high-voltage service
- BCP and off-grid plans combining GHP, solar generation and LPG generation

Constraints

- Preserve flexibility to reduce electricity use and equipment scale in the future
- Treat air conditioning as seasonal load and other demand as base load
- Cap electrical equipment capacity at 25 kW and design normal operation around approximately 12–13 kW
- Define responsibility boundaries among building work, equipment work and owner-side work, together with outdoor environmental conditions, during design

Evidence / References

Kei Communication Technology Inc. design and operation records (this case study)

Supports: Separation of seasonal and base loads, GHP adoption, 25 kW cap, normal load design around 12–13 kW, and low-voltage service

URL: <https://www.ieee802.co.jp/cases/case-001-taiho-bousai-part2.php>

Kei Communication Technology Inc., “ Why School Air-Conditioning Projects Become Fixed to High-Voltage Service ”

Supports: Decision criteria for describing load, safety and future conditions in the RFP before selecting the receiving-service method

URL: <https://www.ieee802.co.jp/articles/article-042-rfp.php>

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