Independent Technical Diagnostic Report

Independent technical analysis based solely on publicly available information

Client:	Public Case Study – Sanitized Version
Project:	Utility-Scale BESS (U.S. Southwest)
Report Number:	
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This document is a sanitized public case study demonstrating BiP Omega's Stage-1 forensic diagnostic methodology. All findings are derived exclusively from publicly available information. Client and project identifiers have been anonymized for confidentiality.

Important Notice

Forward-Looking Statements

This Report contains projections, estimates, and forward-looking statements regarding financial performance, project economics, and market conditions. Such statements are subject to risks and uncertainties, and actual results may differ materially from those projected.

The Independent Engineer does not guarantee future financial performance or returns on investment. Investors should conduct their own due diligence and consult with financial advisors before making investment decisions.

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Executive Summary

Critical Decision Blockers

Investment decisions are BLOCKED due to absence of critical data.

Critical Silence	Financial Impact	Status
Energy Capacity	Cannot model duration-based revenue	CRITICAL
Thermal Derating Curves	Risk during peak windows (4-6 PM)	CRITICAL
Warranty Terms	No recourse if performance < projections	CRITICAL
UL9540A Testing	Possible insurance exclusion	CRITICAL

Table 1: Critical Information Gaps

Analysis Metrics

- **6** Critical silences detected
- **2** CRITICAL unassigned risks
- **$9.5-23M+** Unquantified annual exposure
- **Level 1/3** Current diagnostic maturity

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Chapter 1

Evidence-Grade Parameter Register

1.1 Confirmed Parameters (HARD Evidence)

The following parameters have been verified from source documentation (*Project Due Diligence Package*):

Parameter	Value	Source	Confidence
Power Capacity	400 MW	DD Package	HARD
Battery Chemistry	Li-ion (LFP)	DD Package	HARD
Max Ambient Temp	46°C	DD Package	HARD
Site Location	High-temp desert (>45°C peak)	DD Package	HARD
Site Area	39.25 acres	DD Package	HARD
HVAC Parasitic Load	3-6%	DD Package	HARD
Peak Risk Window	4:00-6:00 PM	DD Package	HARD
MPT Bridge Loads	150+ tons	DD Package	HARD

Table 1.1: Verified Technical Parameters

1.2 Critical UNKNOWN Parameters

Parameter	Status	Impact
Energy Capacity	UNKNOWN	Cannot model duration-based revenue
Container Layout	UNKNOWN	Thermal propagation risk
Integrator Vendor	UNKNOWN	Warranty and safety analysis
Thermal Setpoints	UNKNOWN	Derating analysis

Table 1.2: Critical Information Gaps

Chapter 2

Silence Detector Findings

2.1 CRITICAL S-002: Thermal Derating Curves

- **Category:** TECHNICAL
- **Declared:** 46°C maximum ambient temperature
- **Missing:** Thermal derating curves vs temperature
- **Financial Impact:** $2-5M annual exposure (RA risk + arbitrage loss)
- **Direct Question:** *"Provide BMS thermal derating curves from 25°C to 50°C ambient"*

2.2 CRITICAL S-003: HVAC Capacity

- **Category:** TECHNICAL
- **Declared:** 3-6% parasitic load range
- **Missing:** HVAC capacity and redundancy
- **Financial Impact:** $1.5-3M annual revenue volatility
- **Direct Question:** *"What is the HVAC cooling capacity in kW and N+1 redundancy?"*

2.3 CRITICAL S-006: Fire Safety UL9540A

- **Category:** SAFETY
- **Declared:** Li-ion (LFP) chemistry
- **Missing:** UL9540A testing and suppression system design
- **Financial Impact:** 200-400% insurance premium increase
- **Direct Question:** *"Provide UL9540A test reports and fire suppression system design"*

2.4 CRITICAL S-007: Warranty Terms

- **Category:** CONTRACTUAL
- **Declared:** 400 MW power capacity
- **Missing:** Throughput, availability, EOL capacity warranties
- **Financial Impact:** No recourse if performance < projections (breaks DSCR)
- **Direct Question:** *"Provide warranty terms: throughput, availability, EOL capacity"*

Chapter 3

Energy Capacity Scenarios (Derived)

Scenario	Duration	Energy MWh	Market Context
S1_2h	2 hours	800 MWh	Minimum viable for grid services
S2_4h	4 hours	1,600 MWh	Standard Regional ISO RA duration
S3_6h	6 hours	2,400 MWh	Long-duration storage trend

Table 3.1: Derived Energy Capacity Scenarios

Assumptions Disclaimer

WARNING: These scenarios are ASSUMPTIONS until real capacity is confirmed. Investment decisions based on unverified capacity assumptions carry substantial financial risk.

Chapter 4

Evidence-Based Risk Register

4.1 R-001: Thermal Derating

- **Trigger:** Ambient temperature > 45°C during 4-6 PM window
- **Evidence:** Document confirms sustained temperatures > 46°C Jul/Aug/Sep
- **Consequence:** Reduced output during highest price periods
- **Data Needed:** BMS thermal derating curves, HVAC specifications

4.2 R-002: HVAC Parasitic Load

- **Trigger:** Continuous HVAC operation during hot periods
- **Evidence:** Document quantifies 3-6% parasitic load range
- **Consequence:** Reduced effective capacity for RA obligations
- **Data Needed:** HVAC power consumption curves, ambient correlation

4.3 R-003: Civil Infrastructure

- **Trigger:** MPT loads > 150 tons during construction/maintenance
- **Evidence:** Document specifies MPT loads 150+ tons for bridge
- **Consequence:** Structural limitations or maintenance costs
- **Data Needed:** Bridge design loads, maintenance schedule, replacement costs

4.4 R-004: Federal Permits

- **Trigger:** Federal land use for transmission line
- **Evidence:** Document establishes gen-tie crosses federal land
- **Consequence:** Federal environmental review process and oversight
- **Data Needed:** Federal ROW status, environmental review timeline, mitigation requirements

Chapter 5

Financial Impact Analysis

5.1 Identified Annual Exposures

Risk Category	Annual Exposure
Thermal Risk	$2-5M
Parasitic Load	$1.5-3M
Bridge Replacement	$0.5-2M
Fire Insurance	200-400% premium increase
Permitting Costs	$5-10M (financing costs from delays)
TOTAL UNQUANTIFIED EXPOSURE	**$9.5-23M+ annual**

Table 5.1: Financial Risk Exposure Summary

Chapter 6

Go/No-Go Decision Matrix

6.1 Current NO-GO Conditions

✗ Energy capacity not specified
✗ No thermal derating curves
✗ Warranty terms not disclosed
✗ Safety testing not documented

6.2 Required GO Conditions

✓ Energy capacity confirmed
✓ Complete thermal validation
✓ Bankable warranties reviewed
✓ Safety certifications approved

Chapter 7

Diagnostic Maturity Level

7.1 Current Level: 1/3

Capabilities: Identify missing parameters, generate red flags

Limitations: Cannot quantify performance degradation, cannot validate manufacturer claims

7.2 Level 2 Required: Technical Due Diligence

Requirements: Project technical specifications, manufacturer test data

Outcome: Manufacturer claim validation, bankability analysis

Chapter 8

Executive Conclusion

8.1 Current Status

PROJECT IS NOT FULLY EVALUABLE with public information alone.

8.2 Recommendation

Require **Stage 2 - Confidential Validation** for:

- Complete data room access
- Manufacturer claim validation
- Detailed thermal modeling
- Complete contractual analysis

8.3 Critical Warning

WITHOUT THESE DATA: Investment Committee **CANNOT** make informed GO/NO-GO decision.

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This analysis is based solely on public documents and follows evidence-grade principles with complete traceability. All UNKNOWN parameters are clearly identified.

About the Author

Gustavo Bierge Mascorro is an independent technical advisor specializing in forensic diagnostics and decision gating for energy infrastructure investments. His work focuses on identifying critical technical risks and information gaps that affect bankability decisions prior to Financial Close.

Core Methodology: Evidence-grade analysis based exclusively on available documentation, with explicit identification of UNKNOWN parameters and unquantified risks.

Target Audience: Investment Committees, lenders, technical insurers, and institutional investors requiring independent assessment of technical risk exposure before capital commitment.

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