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Project: 2.5 MW DC Ground & Canopy Solar Array with 1.2 MW / 4.8 MWh BESS

Prepared For: Meridian Logistics & Industrial Park LLC

PAGE 1: EXECUTIVE SUMMARY & SYSTEM TOPOLOGY

1.1 Project Introduction:

SunVault Engineering Solutions presents an optimized high-yield solar and storage architecture designed to maximize long-term cash flows and hedge against escalating commercial electricity tariffs.

1.2 Technical Specifications:

- Total DC Nameplate Capacity: 2,480 kW DC utilizing 600W high-efficiency N-type TOPCon bifacial modules.
- Inverter Architecture: (2) Central 1,250 kW containerized skid-mounted bi-directional inverters with integrated medium-voltage transformers.
- Storage System: 1.2 MW / 4.8 MWh liquid-cooled modular LFP battery enclosures.
- Mounting Structure: Combination of ballasted flat-roof racking (1,500 kW) and solar parking canopies (980 kW) with 15-degree tilt.

PAGE 2: UTILITY INTERCONNECTION & REGULATORY COMPLIANCE

2.1 Interconnection Management:

- Interconnection Path: Fast-track Tier 3 DGIA review with CenterPoint Energy.
- Grid Support Functions: Inverters equipped with advanced Volt-VAR and Frequency-Watt response profiles to comply with IEEE 1547-2018 and local utility interconnection tariffs.
- Queue Mitigation: SunVault provides an interconnection delay guarantee, absorbing holding costs if utility study delays exceed 90 days beyond baseline projections.

PAGE 3: INVERTER PROCUREMENT & SUPPLY CHAIN MITIGATION

3.1 Equipment Procurement Strategy:

- Central Inverter Skids: Pre-assembled factory-tested central skids sourced from North American manufacturing facilities, completely bypassing overseas maritime shipping queues.
- Serviceability: Centralized architecture allows factory-certified technicians to perform rapid component-level servicing within climate-controlled enclosures.
- Spares & Support: 24/7 remote SCADA monitoring with predictive failure analytics included for 5 years.

PAGE 4: PERFORMANCE MODELING, DEGRADATION & TARIFF ARBITRAGE

4.1 Energy Yield & Degradation Metrics:

- Year 1 Estimated Generation: 3,780,000 kWh (higher yield due to 15-degree canopy tilt optimization).

- Degradation Rate: Guaranteed annual degradation not to exceed 0.50% in Year 1 through 25.
- DC/AC Ratio: 1.28:1 with optimized clipping management software to capture shoulder-hour generation.

4.2 Tariff Arbitrage & Resiliency:

- Peak Shaving: Programmable battery dispatch tied directly to facility sub-meter telemetry.
- Microgrid Capability: Black-start functionality included to power critical administrative loads during grid outages.

PAGE 5: FINANCIAL INVESTMENT SUMMARY & WARRANTIES

5.1 Project Investment & Schedule:

- Total Turnkey EPC Cost: \$3,620,000 (Fully inclusive of civil works, canopy foundation engineering, electrical tie-in, and commissioning).
- Deployment Timeline: 26 weeks from contract execution.
- Warranty Structure: 10-year comprehensive turnkey warranty covering all defects in materials and workmanship; 25-year module warranty; 10-year BESS capacity retention warranty (70% retention at Year 10).