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9.6 MW Tesla Megapack BESS – Full Project Plan

Site: Calipatria, CA 92233

Technology: Tesla Megapack 2 XL

Phase Count: 1 (Single Phase)

Project Size: 9.6 MW / 19.3 MWh

Total Estimated Cost: ~$9.94M

Federal Incentives: 50% ITC (30% Base + 10% Energy Community + 10% Domestic Content)

1. Project Overview

This project proposes a single-phase, utility-grade Battery Energy Storage System (BESS) using Tesla Megapack 2 XL units installed at Calipatria, CA. The system is designed to meet the minimum threshold utilities consider meaningful (approximately 10 MW), enabling participation in Resource Adequacy (RA), capacity markets, and grid-support services.

The project is structured to maximize federal incentives, minimize integration complexity, and position the asset for long-term refinancing after commercial operation.

2. Site Summary – Calipatria, CA

- Flat, developable land suitable for energy infrastructure
- Agricultural zoning compatible with BESS development
- Located within an Energy Community, qualifying for an additional 10% ITC
- Proximity to Imperial Irrigation District (IID) grid infrastructure
- Estimated land control cost: $20,000 (option agreement)

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3. Technology – Tesla Megapack 2 XL

Tesla Megapack provides a fully integrated, factory-tested energy storage solution including:

- Battery modules and racks
- PCS/inverters
- HVAC and thermal management
- Fire suppression
- Battery Management System (BMS)
- SCADA/EMS controls
- UL-listed, CAISO-approved hardware

This integration significantly reduces EPC complexity and project risk.

4. System Configuration

- **Megapacks:** 5 units
- **Total Power:** 9.6 MW
- **Total Energy:** 19.3 MWh
- **Duration:** 2 hours
- **Interconnection Voltage:** 34.5 kV (typical IID feeder voltage)
- **Footprint:** ~1.5–2 acres

5. Costed Bill of Materials (External Items Only)

Tesla Megapack integrates all internal systems. The following BOM includes only external hardware and site-level components required for a complete, utility-grade installation. Refer table

Total Project Cost:

$9,940,400

9.6MW BESS BOM

Category	Item	Qty	Unit Cost (USD)	Subtotal (USD)	Notes
Tesla Hardware	Megapack 2 XL (9.6 MW / 19.3 MWh)	5 units	$5,045,000	$5,045,000	From Tesla design tool
Medium Voltage Interface	MV Transformer (10–12 MVA, 34.5 kV)	1	$600,000	$600,000	Step-up transformer
	MV Switchgear lineup	1	$900,000	$900,000	Breakers, relays, metering
	Protection relays (SEL)	3	$20,000	$60,000	Feeder + transformer + PCS
	Utility revenue-grade meter	1	$25,000	$25,000	Required for billing
Civil & Structural	Megapack concrete pads	5	$40,000	$200,000	Tesla requires engineered pads
	Transformer/switchgear pad	1	$60,000	$60,000	Heavy pad
	Trenching + conduit	1 lot	$250,000	$250,000	LV + MV + control
	Access road + grading	1 lot	$150,000	$150,000	Gravel + drainage
	Fencing + gates	1 lot	$80,000	$80,000	Security perimeter
Cabling & Electrical	LV cabling (Megapack → transformer)	1 lot	$120,000	$120,000	AC cabling
	MV cabling (transformer → POI)	1 lot	$180,000	$180,000	MV cable + terminations
	Grounding grid	1 lot	$70,000	$70,000	Ground rods + bonding
	Auxiliary power panel	1	$30,000	$30,000	For site lighting, comms
Safety & Compliance	Site fire system (external only)	1 lot	$50,000	$50,000	External extinguishers, signage
	Emergency stop stations	4	$2,500	$10,000	Required by AHJ
Engineering & Soft Costs	Civil + electrical engineering	1 lot	$400,000	$400,000	Stamped drawings
	Permitting + inspections	1 lot	$150,000	$150,000	AHJ + utility
	Interconnection studies	1 lot	$1,200,000	$1,200,000	Utility-driven upgrades
	EPC labor + overhead	1 lot	$1,000,000	$1,000,000	Construction + integration
	Contingency (10%)	1 lot	$500,000	$500,000	Standard
Land	Land control (option/lease)	1	$120,000	$120,000	Estimated 12 Acres @10k/acre
Total				**$11,200,000**	

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6. Federal Incentives (50% ITC)

The project qualifies for:

- **30% Base ITC**
- **10% Energy Community ITC**
- **10% Domestic Content ITC**

Total ITC = 50%

On a ~$10M project: **$10M × 50% = $5M ITC**

Bonus depreciation (60%) applies to the remaining basis.

7. Development Timeline

Months 0–2

- Land option signed
- Tesla reservation placed ($10k)
- Preliminary engineering
- Interconnection application submitted

Months 2–6

- Utility studies
- Load flow, short-circuit, and protection review

Months 6–9

- EPC contracting
- Permitting
- Site civil preparation

Months 9–18

- Megapack delivery

- Installation
- Commissioning
- Permission to Operate (PTO)

8. Financing Strategy

A 10% equity strategy is viable:

- **Equity:** ~$1M
- **Debt:** ~$6–7M (construction loan)
- **Vendor terms:** 30–60 days typical
- **Refinance after COD:** 20–25 year amortization
- **Revenue:** RA + capacity + ancillary services

Interconnection approval is the key milestone that unlocks bank financing.

9. Summary

This project plan outlines a single-phase, utility-grade 9.6 MW Tesla Megapack BESS installation at Calipatria, CA. The project is structured to maximize federal incentives, minimize integration complexity, and position the asset for long-term financial performance.

The total project cost aligns closely with the $10M target, and the system qualifies for a 50% ITC, significantly improving project economics.

This plan is ready for utility engagement, EPC discussions, and financial modeling.