



OCTOBER 22, 2021

# Town of Los Gatos Battery Energy Storage System

ELECTRICAL RFP





# Letter of Interest

October 22, 2021

Town of Los Gatos

41 Miles Avenue  
Los Gatos, CA 95030  
ATTN: Matt Morley

RE: Town of Los Gatos Battery Energy Storage System  
Request for Proposal: Electrical

Dear Matt:

PRIME Electric is pleased to submit our Electrical Proposal for the Town of Los Gatos Battery Energy Storage System project. Our project experience with Design-Build and preconstruction services will bring tremendous value to the Town of Los Gatos team.

Our recent project experience (demonstrated herein) shows our ability to successfully turn over this project. We are comfortable with the Design-Build delivery model for this project and have selected a team that best fits the needs of the Town of Los Gatos Battery Energy Storage System project.

We understand that this project will be highly collaborative. PRIME will bring our lean and innovative practices, lessons learned from successes and challenges in the marketplace, and our strong and collaborative field team consisting of wireman and supervisors.

Additionally, the identified RFP project fundamentals are also core principles at PRIME:

- Proactive approach to preconstruction cost control and project planning
- Willingness to listen and provide project and design advice to the team
- Proven ability to deliver based on project needs
- Customer service focus
- Commitment to safety and quality control
- Commitment to planning and using Lean Planning principles (i.e. Pull Planning)

We are excited about the opportunity to work on this project; the outlined delivery model encompasses all of our best attributes. Performance based criteria and accountability metrics are welcomed by PRIME.

We are committed to adding value to this project. In order to accomplish this, PRIME will be a proactive team member that brings ideas to the table and focuses on solutions rather than problems. PRIME has the organizational depth and resources to assure total control and optimization of cost, quality, and schedule to positively impact the project.

Our project team will assist in developing the best overall solutions for the benefit of the entire project, not just our trade. We believe that the success of the project is best measured as a whole rather than by individual disciplines.

We look forward to demonstrating our ability to accomplish these goals. Thank you for the opportunity to provide this proposal response. We look forward to any questions or feedback.

Best Regards,

  
Jonathan Graves  
PROJECT EXECUTIVE



# Meet Your Team

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**Danny Thomas**  
CHIEF OPERATING OFFICER



**Mike Sanjurjo**  
EXECUTIVE DIRECTOR  
OF SALES



**Brandon Elliott**  
GROUP EXECUTIVE



**Jonathan Graves**  
PROJECT EXECUTIVE



**Anthony Pinon**  
SERVICE & SPECIAL  
PROJECTS MANAGER



10/22/2021

Town of Los Gatos  
Parks and Public Works  
41 Miles Avenue  
Los Gatos, CA 95030

Attention: Matt Morley

Reference: Town of Los Gatos – Energy System  
Prime Reference #: 21-228

Dear Matt,

Prime Electric is pleased to present this proposal for the electrical work required for the Project Town of Los Gatos – Energy System. This proposal is based on the provided drawings dated 3/15/10 and the scope discussed and detailed below.

Scope of work:

1. Provide Design Engineering and drawings for permitting.
2. Provide excavation and patch back for all underground requirements.
3. Install 125-kilowatt ELM Microgrid Battery Storage System.
  - a. See attached for cutsheet and details.
4. Provide start up, commissioning, and training for new Microgrid Battery Storage system.

Clarifications:

- A. All work shall be completed during normal business hours (7:00am to 4:00pm).
- B. All work shall be installed in compliance with the applicable specifications and all applicable codes.
- C. We have based our proposal on having unrestricted access to all work areas.
- D. We have assumed that the electrical panels have the space and capacity to accommodate the electrical requirements for this installation.

\* **NOTE:** Commodities such as wire and conduit cost can fluctuate daily, and equipment pricing generally adjusts quarterly. Significant price increases will result in a request for adjustment of contract price
- E. We have not included the following:
  1. Overtime.
  2. Cut, patch and paint of existing finishes.
  3. Replacement of ceiling tiles.
  4. Provisions for and installation of temporary power and lighting.

5. Provisions for and installation of access panels.
6. Provision for a performance and payment bond.

**The total cost to complete this work is \$498,470.00**

Thank you for allowing Prime Electric to present this proposal for your review and consideration. This proposal is valid for sixty (60) days. Should you have any questions and/or comments, please feel free to contact me at (925) 961-1600.

Sincerely,

*Jonathan Graves*

Jonathan Graves  
Project Executive  
Prime Electric

Approval Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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## Prime Electric - Town of Los Gatos

- Battery Energy Storage System Bid Submittal -

SITE: 100 Villa Ave, Los Gatos, CA 95030

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### 125 kW / 330 kWh ELM BATTERY ENERGY STORAGE SYSTEM

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#### BATTERY ENERGY STORAGE SYSTEM (BESS)

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Solar Technologies will design and furnish a 125-kilowatt ELM Microgrid Battery Storage system to provide 100% backup power during grid outage. The ELM Microgrid ESS has been engineered to form a microgrid, and can perform demand response, Time of Use, and self-consumption. The microgrid system integrates an EPC bi-directional inverter (PCS), Kore's UL 9540a lithium-ion battery, ELM Fieldsight energy management software and an energy meter which measures your facility's energy consumption and deploys energy as needed. All of these components are bundled in a pre-engineered NEMA 3R enclosure which includes thermal management.

The system will be designed with a charging or discharging power of 125 KW and an energy storage capacity of 330 kWh. The energy storage capacity is capable of future expansion up to 440 kWh.

The system will include a free standing NEMA 3R battery cabinet inclusive of battery modules, battery racks, integral controls, and fire suppression system. During times the grid is functioning, the system will provide self-consumption, energy arbitrage and demand charge management peak shaving functionality.

Solar Technologies will design, engineer, permit and provide a battery energy storage system described below. ELM will provide battery system commissioning assistance.

- **ELM Microgrid Battery Storage 125 kW / 330 kWh**
- Systems contain the following:
  - 3x 110kWh Kore battery racks and BPU pre-installed
  - Kore BMS
  - EPC 125 kW PCS
  - ELM Microgrid controller
  - ELM Microgrid Switchgear package

- Internal A/C bus for solar, generator, & microgrid loads
- 5 Year ELM Monitoring
- 5 Years OEM Warranty
- 24 Volt DC power supply and UPS
- HVAC/heater (thermal management of batteries)
- NEMA 3R main enclosure
- Junction panel with termination blocks
- Wattnode energy meter
- ELM will provide Annual Report on System Functionality

## SYSTEM OPERATION

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ELM's Energy storage system can be used in 4 key storage applications for commercial battery systems:

**Forms a Microgrid:** The system will form a microgrid either for the lifetime of the system or intermittently upon grid failure. Included in the standard microgrid system is a battery, inverter, internal UPS used for system controls, wiring box, grid relay and contactor.

**Demand Response:** Energy Storage system is used to offset a facilities demand charges by reducing the demand to the local utility by deploying energy from the battery during preset peak demand times

**Time of Use Shifting (TOU):** This system will store less expensive off-peak energy into the battery and then deploys that energy from the battery during more expensive peak rate times.

**Self-Consumption:** In markets that do not allow net metering your battery system can store excess PV generation thus preventing the system from back-feeding PV power to the grid.

### **System Overview & Functionality:**

This system will have full Microgrid functionality as well as additional functionality that may be used to add capabilities and decrease electricity costs. Depending on how much electricity is being used, the system will provide power for at least 2 hours and could run infinitely with solar input. An onsite generator could also be used for onsite power. The preferred scenario would be that the generator would only need to be used in rare circumstances during times of especially low solar production (e.g. a large winter storm in January) Below is a typical system of operations.

### **Sequence of Operations**

The two main operational modes are Island (backup) and Grid Tied.

#### **1.1 Island Mode (SO02/SO03)**

In this mode, the Microgrid will operate as an island isolated from the utility grid. The goal in this mode is to maximize the use of available battery and PV and minimize the use of the generator. In this mode, there are two operational modes and three sub modes:

- Genset ON (SOO2): When the combined maximum output of the PV array and battery (a minimum SOC threshold for the battery has been reached) is insufficient to support the loads, the site controller should turn ON the genset incorporating a seamless transition. While the genset is ON, the storage inverter will be utilized to support the load and charge the battery in current source mode. The generator will be operating in a constant power mode while charging the batteries with excess power generation. PV will be utilized if available.
- Genset OFF (SOO3): While there is sufficient PV generation and battery capacity available, the generator will remain off and the storage inverter will form the grid and act as the Microgrid master. The PV inverters will sense the AC voltage on their terminals and follow the storage inverter.

### **1.2 Grid Tied Mode (SOO6/SOO5)**

In this mode, the Microgrid will operate in parallel with the utility grid. The goal is to maximize the local consumption of the PV generation and battery while keeping the batteries charged to prepare for an outage. If there is sufficient PV generation, the solar array will power the loads on site. If the load is fully met, PV will prioritize charging the battery bank until the battery state-of-charge (SOC) reaches 100%. If the PV generation exceeds the amount of power the battery can absorb (either due to high SOC or charge power limitations), the Microgrid can either export excess PV generation to the utility grid if allowed or curtail excess PV to prevent from exporting PV power to the grid. The microgrid will never export any battery power to the grid.

- Peak Shaving (SOO6): The Microgrid can be enabled to use PV and the battery up to a specific SOC threshold (configurable) to minimize grid import power by setting a load threshold the user wants to keep the grid power below.
- Demand Response (SOO6): The Microgrid can be enabled to use PV and the battery up to a specific SOC threshold (configurable) to minimize grid import power only during certain times by setting a load threshold the user wants to keep the grid power below.

We will provide equipment cutsheets, shop drawings, factory test reports, wiring diagrams, commissioning reports, as-builts and O&M Data as specified.



## PROPOSAL ASSUMPTIONS, CLARIFICATIONS AND EXCLUSIONS

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- Building permit fee and PG&E interconnection applications are excluded, to be passed through at direct cost without markup; we will request an estimate from AHJ prior to execution of contracts.
- ~~New concrete pad with steel bollards for protection of energy storage enclosure to be provided by others.~~ Included.
- Site preparation, including grading, soil stabilization, removal of landscaping and final grading is excluded and to be performed by others if needed.
- Microgrid control system programming & commissioning is excluded.
- Microgrid metering, relays, critical load panels and other related infrastructure and labor is excluded.
- Proposal assumes the existing Solar PV source circuit can be re-routed to energy storage system bussing.
- Proposal assumes as-built plan sets, C-ALTA, Geotechnical and Title Reports provided by Customer are sufficient for system engineering and permitting approval requirements. Additional studies or engineering reports will be charged in addition to proposal if required.
- ~~On-site construction and labor services are excluded from our quote, prevailing wages would not apply.~~
- Repairs or upgrades to the property not described within this Proposal which are otherwise required or discovered during the project. This can include existing electrical equipment, structural improvements, roof system repairs, etc.
- Utility company interconnection requirements such as NGOM meters or upgrades to Utility company infrastructure or mitigation work required through the utility interconnection application are excluded.
- Any extraordinary engineering, approvals, discretionary reviews, special certification or testing would be charged in addition to this Proposal.
- Costs incurred because of property access restrictions during normal working hours or Buyer's non-standard work hour requirements are excluded.
- Painting or any other "decorative work" on the System is excluded.
- Bid, Price or Performance Bonding is excluded.
- Fire safety and sprinkler systems are excluded.
- Security personnel excluded, securing equipment is the responsibility of Customer upon delivery and installation.
- Repair of damaged underground utilities, power, plumbing or irrigation lines if not provided with plans specifying their location is excluded.
- Remobilization after start of construction is excluded.
- Any work not originally included within this Agreement or specified as an inclusion within this Addendum A will be charged in addition to this Agreement at a labor rate of \$205 per hour and costs plus 15%.

**\*Price is good for 30 days\***

## SOLAR TECHNOLOGIES CORPORATE QUALIFICATIONS

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STE Electric DBA Solar Technologies was founded in 1998. We are a privately held, full design/build, C-10/C-46 licensed contractor with 85+ employees and offices in San Ramon, Campbell and Santa Cruz, California. We focus on grid-tied, behind-the-meter PV solar, energy storage and EV charging station projects for commercial, municipal, non-profit and residential customers.

Over the past 20+ years we have established ourselves as one of the most accomplished and skilled solar design and installation companies in the business by providing customers with the best equipment, people and service at a competitive price. We are ranked among the top 25 commercial solar developers in California and were recognized in 2019 as SunPower's National Dealer of the Year and three times as SunPower Regional Commercial Dealer of the Year.

### CALIFORNIA STATE LICENSE BOARD:

License #:	932914
License Type:	C-10 Electrical / C-46 Solar
Expiration:	05/31/2023
DIR Public Works Registration #:	PW-LR-1000460402

### INSURANCE:

Broker Name:	Wise Insurance Agency, Inc.
Broker Contact:	415.258.9912
Certificate of Insurance:	Provided Upon Request
Commercial GL:	\$1,000,000 per occurrence, \$2,000,000 general aggregate covering bodily injury, property damage liability, operations and contractual liability.
Commercial Auto:	\$1,000,000 per occurrence covering bodily injury and property damage liability.
Umbrella/Excess Liability:	\$4,000,000 per occurrence and \$4,000,000 general aggregate in excess liability coverage provided by GL and Auto.
Workers Compensation:	\$1,000,000 for bodily injury as required by law.





The ELM Microgrid Turnkey Package is shipped as a self-contained unit and can be installed outdoors or indoors.



## MICROGRID 125kW PACKAGE

### Turnkey Solution

- Factory Assembled
- Pre-Engineered
- Pre-Wired
- Pre-Installed Safety Labels
- Pre-Tested

### Managed Assets

- Solar Generation
- Distributed Battery Storage
- Diesel, Propane & Nat Gas Generators
- CHP Systems
- Grid Power

### Communications & Control

- 4G LTE Cellular
- Ethernet and Wifi
- Building Management
- Generator Start and Stop
- Optimal Power Forecasting
- Power Reliability Alerts
- Isochronous Generation Control

### The Switch Advantage

- Turnkey Solution
- Indoor and Outdoor Enclosure Options
- Climate Control
- Fire Suppression Options
- Microgrid Installation and O&M Guides

## Electrical Specifications

AC Voltage	480 VAC
AC Input/Output Current	150 A
Max AC Output ( <i>discharge</i> )	125kW
Max AC Input ( <i>charge</i> )	125kW
Battery Capacity Range	110kWh – 910kWh
AC Frequency ( <i>field settable</i> )	60 Hz
Max AC Overcurrent Protection	180 A
Peak Efficiency	98.5%
Power Factor	0 -1.0 Leading or Lagging

## Equipment Specifications

External Dimensions ( <i>L x W x H</i> )	60" x 36" x 104"
Weight	6100 lbs. (220kWh)
Lifting Provisions	Fork Lift Slots
Paint Tested	1000 Salt Hour Spray
Fire Suppression Options	Hybrid - 3M Novec
Temperature Range	-20°C to 50°C

## Transfer to and from Islanded Mode

**Upon detecting a grid disturbance, the system disconnects the Microgrid from the grid and seamlessly transitions critical/resiliency loads to Microgrid Islanded mode.**

**While in Microgrid Islanded mode, the system manages solar, wind and generator assets in order to efficiently support the resiliency loads.**

## Control Software

ELM Autonomous Microgrid Site Control System
Access & Alerts on Desktop & Mobile 24/7
Asset Monitoring System Level & Individual
Individual Microgrid Component Pages
Local HMI IP 65 Touchscreen
Communications: WiFi, Ethernet, Cellular

## Functionality

Islanded MicroGrid	Off-Grid Applications
Grid Tied MicroGrid	AI Machine Learning Demand Charge Mgmt. Peak Shaving Self-Consumption Demand Response
Distributed Generation	Time of Use Operation

## Key System Components

NEMA 3R Enclosure
Bi Directional Storage Inverter
DC Disconnect - (Battery)
AC Disconnect ( <i>Inverter</i> )
Climate Controls

## Certifications

Batteries	UL 1973, UL 9540A
Inverter	UL 1741 SA, IEEE 1547
System	UL 9540

**For higher power or storage requirements multiple systems can be paralleled and additional energy storage containers can be added. Please contact Switch Storage for more details.**

