



Laguna Woods Village®

OPEN MEETING

SPECIAL OPEN WORK SHOP FOR THE VILLAGE ENERGY TASK FORCE

**Friday, October 18, 2019 – 1:00 PM
Laguna Woods Village Community Center Board Room
24351 El Toro Road**

NOTICE and AGENDA

This Meeting May be Recorded

1. Call to Order
2. Acknowledgment of Media
3. Approval of the Agenda
4. Chairman's Remarks
5. Member Comments (*Items Not on the Agenda*)

Reports:

6. Update and Review of TEC's Energy Priority Work Plan and Deliverables

Concluding Business:

Date of next meeting – November 6, 2019
Adjournment

Steve Leonard, Chair
Ernesto Munoz, Staff Officer
Telephone: 268-2281

11/14/2018

Ernesto Munoz
VMS
24351 El Toro Road
Laguna Woods, CA 92636

Subject: Proposed Scope of Work for Golden Rain Foundation

Dear Ernesto,

The Energy Coalition (TEC), with support from TRC, would like to provide Golden Rain Foundation (GRF) the below Scope of Work for approval prior to moving forward on implementation and to ensure we are all aligned with expectations on scope and budget should we be approved to proceed. We have summarized our plans to address the priorities identified by the Mutuals in the two (2) tasks below. We have also included any key assumptions made to arrive at these budget estimates.

This task order will evaluate the condition of the existing electrical infrastructure in order to lay the groundwork for a future microgrid and alternative energy system for electrical energy generation to help the community achieve their sustainability goals. The total budget for Tasks 1 and 2 is \$50,000.

Task 1. Perform assessment of community's electrical infrastructure

Timing: Q4 2018 - Q1 2019

Budget: \$26,000 (approximately 200 hours)

The Team's approach will be to perform a baseline assessment, including a holistic review of the community's electrical systems and infrastructure for the current state. The scope of this task will include systems that are relevant to integration of microgrids and alternative energy systems for electrical energy generation.

This task will include, but is not limited to the following:

- Establish existing energy demand and infrastructure baseline.
 - Review SCE utility data including: electrical loads on feeders and lateral lines, existing single line diagram to determine existing power service capacity and configuration.
 - Review existing facility information.

- Develop understanding of ownership for grid and supply side electrical infrastructure
- Conduct field visits of the community to fill in gaps in facility and infrastructure data
- Review of previous energy studies and completed projects
- Develop inventory of transformers
- Interview staff to confirm understanding of previous, current, and planned infrastructure upgrades.
 - Collect information on Pushmatic Panel Replacement project & schedule.
- Assess power-critical assets, load sizes and profiles, the location to supply and storage infrastructure necessary to support a microgrid. This may include conducting load studies to confirm that adequate capacity exists in the existing service and distribution switchgear. The load study may involve metering up to two points for power, amps and volts over at least a week-long period.

Assumptions

- Utility data will be provided in Excel format
- Utility infrastructure will be provided in Facility Maps
- Assumes that current load information will not be available from the utility and as a result, in-field load studies will be performed.
- Leverages information detailed in Clubhouse 2 & 7 EV charging station assessments.

Deliverable

- Develop report with findings from infrastructure assessment.

Task 2. Investigate the feasibility of a microgrid and alternative energy systems for electrical energy generation at LWV Community Center, Maintenance Yard, and Broadband Building

Budget:

- Phase 1: \$24,000 (approximately 172 hours)
- Phase 2: TBD
- Phase 3: TBD

Timing:

- Phase 1: Q4 2018 - Q1 2019
- Phase 2: TBD
- Phase 3: TBD

Prior to integrating a microgrid, a number of factors should be considered to ensure the right system and approach are used to meet the application requirements. One of the first steps of the task will be to identify the main objective driving the decision to implement a microgrid. Factors such as size (community-wide microgrid vs. facility-level) and the grid interface (islandable or grid-connected) should be considered in the objectives. With objectives clearly laid out, the team will complete a Microgrid Feasibility Analysis in three key phases as identified below.

In this task, the team will investigate the feasibility of alternative energy systems to help the community achieve their sustainability goals. This task will leverage any work completed through Task 1 to inform the application of alternative energy at the Community Center and Maintenance Yard.

Phase 1: Scoping Review. During this phase, the team will determine whether or not the microgrid is right for the Laguna Woods Village Community Center, Maintenance Yard, and the Broadband building. The Community Center was identified as a critical command center for the community since it houses security and emergency management teams. However, it was also identified that the Maintenance Yard houses the fuel that serves the diesel backup generators installed throughout the community and that Broadband building houses all of the community's internet communications. Therefore, these two additional buildings were selected in support of the Community Center and critical resources. The following tasks will be performed to determine this:

- Interface with key stakeholders at Laguna Woods Village to identify expectations of the system and identify critical loads to be served by the microgrid (i.e., security, emergency management team, etc.).
- Determine grid interface based on objectives (grid-connected or islandable).
- Review site data (previous energy efficiency work, utility data, load profile, identify critical loads, findings from Task 1 existing electrical infrastructure assessment, etc.)
- Review and consider existing or potential renewable energy assets for incorporation into a microgrid design (i.e., existing solar, diesel generators).
- Develop possible operating scenarios based on objectives identified.
- Conduct preliminary siting of Distributed Energy Resources (DERs) and energy storage (solar, energy storage, combined heat and power, and fuel-cells).
- Develop high-level preliminary cost estimates.

Based on the outcome of this pre-review, the team will develop a scoping report and make recommendations to GRF whether or not it makes sense to proceed into the subsequent phases of the microgrid feasibility analysis. *If it is recommended to pursue the microgrid further, the scope of work for Phases 2 and 3, as identified below, will be refined and a budget will be provided at that time.*

Phase 2: Technical Feasibility Review. In Phase 2, we will develop and analyze operating scenarios to address short term and long term microgrid system configurations including:

- Assess critical loads required for providing all minimum and desired capabilities to satisfy the needs of the system identified.
- Critical load uptime and black start capabilities
- Extended outage capabilities
- Harmonics and power quality issues and transient response and system restoration
- Microgrid conceptual design - preliminary sizing and siting of Distributed Energy Resources (DERs) and energy storage. DERs will be evaluated for inclusion including solar, energy storage, combined heat and power, and fuel-cells.
- Operation of the advanced microgrid under normal and emergency conditions and the loads served by the microgrid (i.e., Peak kW, Average kW, annual/monthly/weekly kWh (consumed and recovered)).
- Preliminary electrical single lines and control system architecture

Phase 3: Development of Feasibility Study. This study will outline short-term reliability improvement recommendations along with future long-term conceptual design criteria. The feasibility study may include the following elements:

- A cost-benefit analysis of various DERs and energy storage options including optimal sizing for minimized levelized cost of electricity.
- Specific financial and economic analyses including: peak shaving, load shifting/shedding, demand charge management, net metering, ancillary services, frequency regulation, demand response program participation, overall return on investment.

Assumptions

- TBD after Phase 1 Scoping Review

Deliverables

- Microgrid Scoping Study & Presentation
- Microgrid Feasibility Analysis

TEC and TRC have already initiated the data collection and review process. Should the work plan be approved, we will move forward on Tasks 1 and 2.

We look forward to your feedback and please let us know if you have any questions.

Thank you,



Rebecca Hausheer



GOLDEN RAIN FOUNDATION ELECTRICAL INFRASTRUCTURE ASSESSMENT

Prepared by The Energy Coalition with TRC
on behalf of Laguna Woods Village
October 4, 2019

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1 List of Electric Infrastructure Definitions

- **Dry-Type Transformer** - A solid dielectric device that is installed underground in a vault that reduces the voltage to a usable level.
- **Electrical Equipment** – A general term to describe materials, fittings, devices, appliances, fixtures, and apparatus used in connection with electrical facilities.
- **Emergency Panels** – Panels that are dedicated to maintaining electrical service to critical loads (some lighting, fire systems, computers, etc.) during system outages.
- **Energy Management System (EMS)** – Controls that monitor and optimize the energy usage for electrical facilities.
- **Feeder Line** – A high voltage (12,000V) SCE electrical line that serves the LWV electrical facilities.
- **Main Panel** – The LWV panel that accepts the SCE service for each of the facilities.
- **Pad-Mounted Transformer** – An oil filled device that is mounted on a concrete or composite pad that reduces the voltage to a usable level throughout LWV.
- **Sub-Surface Transformer** – An oil filled device that is installed underground in a vault that reduces the voltage to a usable level.
- **Sub-Panel** – A separate smaller electrical panel that is fed from a larger piece of switchgear and serves other electrical load.
- **Switchgear** – A single electrical panel or assembly of panels on which are mounted switches, fuses, bus gear, instruments, and other electrical equipment used to serve the electrical load.
- **Service Line** – A low voltage (277/480V, 120/208V or 120/240V) line that serves LWV electrical facilities.
- **Transformer** – An apparatus used to reduce or increase the voltage. In the case of these reports, the transformers are used to reduce the voltage to a usable level (277/480V, 120/208V or 120/240V), so that electrical loads can be served.
- **Voltage** - Voltage is what makes electric charges move. It is the 'push' that causes charges to move in a wire or other electrical conductor. It can be thought of as the force that pushes the charges, but it is not a force.

2 Executive Summary

Laguna Woods Village (LWV) is a gated retirement community with a population of approximately 16,000 residents. The governance of the community is organized under the California Non-Profit Mutual Benefit Corporation Law. There are four such corporations, three of which are mutual housing corporations (Mutuals) and the fourth is the Golden Rain Foundation (GRF). The community was constructed in 1963 and has an aging infrastructure. The residents have experienced blown fuses, transformer failures, and other electrical issues consistent with aging electrical infrastructure. Additionally, the residential mutuals have added electrical loads over the years, such as individual air conditioners, washers and dryers, and plug-in electric vehicle (EV) chargers.

Golden Rain Foundation contracted The Energy Coalition (TEC) and TRC to conduct an assessment of the current community electrical infrastructure and a feasibility study of a microgrid and alternative energy systems. The electrical infrastructure assessment will provide information to the community to gain an understanding of the existing LWV and Southern California Edison (SCE) infrastructure capabilities to determine what additional electrical loads can be added in regards to a microgrid based on current conditions and identify where upgrades are required to accommodate additional load. As shown in Figure 1, the assessment of current electrical infrastructure is referred to as Task 1 in the approved Scope of Work for Golden Rain Foundation. These results can be used to inform the feasibility study of a microgrid and alternative energy systems in the deliverable for Task 2.

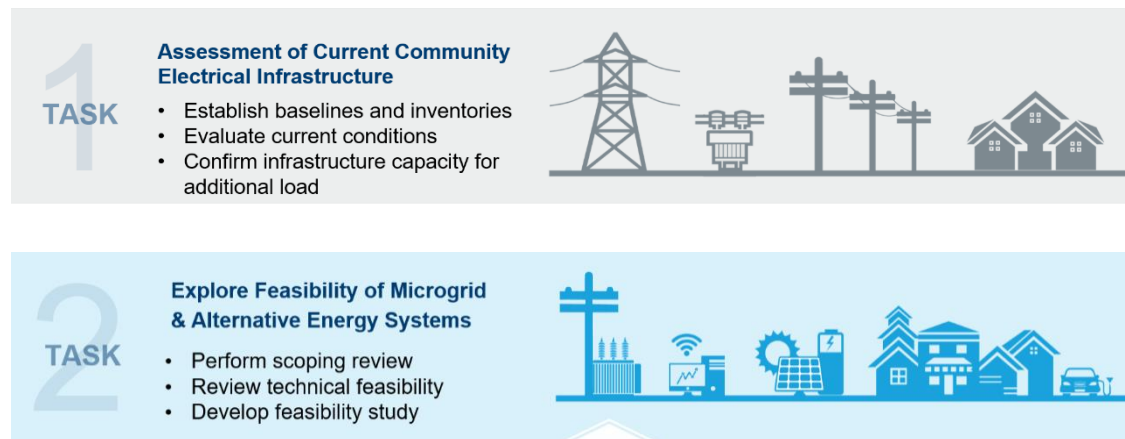


Figure 1: Overview of Tasks

To accomplish the electrical infrastructure assessment and provide recommendations to reduce electrical outages for improved performance of the system, TEC and TRC conducted field visits to each of the GRF Clubhouses, a representative Gate House (Gate House #2), Community Center, and Library to visually assess the existing LWV and SCE electrical

equipment condition. This report summarizes the results of the assessment for GRF facilities. These components include a review of selected sites to represent the facility portfolio and a condition assessment for the electrical infrastructure.

The condition assessment contains detailed information associated with the local electrical infrastructure components, including the overall condition of the equipment, code compliance issues, and recommended action items.

The intent of the field inspections was to assess the condition of the major facilities in the GRF. Not all facilities were included in the scope of the field inspections. The electrical equipment at the GRF facilities is generally in adequate to good condition, with the exception of Clubhouses 1 and 6, which require immediate repairs. The Library electrical equipment also needed some housekeeping. Most of the equipment is original with some upgrades that are noted in Sections 3.6 through 3.15.

Table 1 below provides a summary of the assessment findings and conditions per facility¹. Section 3 provides more detailed descriptions of the conditions and immediate recommendations. An existing condition scoring matrix of each piece of equipment can be found in Appendix B. TRC provided a preliminary analysis into the potential cost implications for the recommended action items. The assessment identified \$180K-\$200K in immediate recommendations for the facilities that were inspected².



Figure 2: Projected costs for the recommended upgrades to Golden Rain Foundation's electrical infrastructure

Table 1: Summary of Assessment Findings and Results

Location	Equipment	Overall Existing Condition ^{3,4}	Immediate Recommendations	Budget Cost ⁵
Clubhouse 1	SCE Transformer	The external condition of the transformer is marginal (not rusted, damaged or visibly overloaded). The transformer is adequately sized to serve the current load.	N/A	N/A

¹ See Appendix A for a site map.
² An additional \$20k was added to account for sites that were not inspected that may require additional upgrades.
³ See Table 2 on page 12 for the criteria used to rate existing conditions.
⁴ See Section 3 of this report for details on the equipment and Appendix B for a scoring matrix of each piece of equipment evaluated.
⁵ These costs are engineering estimates based on material and labor costs to provide new panels or additional circuits.

Location	Equipment	Overall Existing Condition ³⁴	Immediate Recommendations	Budget Cost ⁵
Clubhouse 1 (Contd.)	LWV Switchgear	The electrical equipment in main room is exhibiting signs of excessive rust and deterioration on most of the panels and other electrical equipment, such as the timers, conduits, and electrical support equipment. This equipment needs to be replaced. Assess and replace equipment, such as dry-type transformers that are causing the low voltage issues in the offices.	Separate electrical and pool equipment to prevent further corrosion. The corroded equipment presents an immediate hazard. Repair or replace corroded equipment. Resize and replace dry-type transformers.	\$150,000 - \$15,000 - \$20,000
	Emergency Generator	The generator is in good condition.	N/A	N/A
Clubhouse 2	SCE Transformers	The external condition of the transformers is marginal, (not rusted, damaged or visibly overloaded) but near the end of its life. Newer underground cable serving the switch and the transformers. The transformer is adequately sized to serve the current load.	N/A	N/A
	LWV Switchgear	The main panel was replaced in 2016. The dry-type transformer, subpanels, and emergency room panels were in an adjacent room and in good condition.	N/A	N/A
Clubhouse 3	SCE Transformer	Newer pad-mounted unit. The transformer is adequately sized to serve the current load.	N/A	N/A

Location	Equipment	Overall Existing Condition ³⁴	Immediate Recommendations	Budget Cost ⁵
	LWV Switchgear	The electrical panels were of 1998 vintage and generally in good condition. The main panel has several subpanels to serve the load.	N/A	N/A
Clubhouse 4	SCE Transformers	Newer pad-mounted unit. The transformer is adequately sized to serve the current load.	N/A	N/A
	LWV Switchgear	The electrical panels were of an older vintage and generally in adequate condition. The main panel has several subpanels to serve the load.	N/A	N/A
Clubhouse 5	SCE Transformer	An older pad-mounted unit in adequate condition with a considerable amount of rust on the top and sides. The transformer is adequately sized to serve the current load.	SCE should be contacted to paint the transformer that is serving the facility.	N/A
	LWV Switchgear	The electrical panels were of older vintage and generally in adequate condition. The panels appear to be at least 40 years old and possibly the original equipment installed to serve the Clubhouse. The main panel has several subpanels to serve the load.	N/A	N/A
Clubhouse 6	Emergency Generator	The generator appears to be in good condition.	N/A	N/A
	SCE Transformers	A single-phase, pad-mounted unit manufactured in 2012 and in good condition. The transformer is adequately sized for the current load.	N/A	N/A

Location	Equipment	Overall Existing Condition ³⁴	Immediate Recommendations	Budget Cost ⁵
	LWV Switchgear	The electrical panels were of older vintage and in poor condition. They were all corroded and in need of repair or replacement.	The corroded equipment presents an immediate hazard. The cause of corrosion should be identified and eliminated. Repair or replace corroded equipment.	\$5,000 - \$10,000
Clubhouse 7	SCE Transformer	Newer pad-mounted unit that was manufactured in 2005. The transformer is adequately sized to serve the current load.	N/A	N/A
	LWV Switchgear	The electrical panels were of an older vintage and generally in good condition. The main panel has several subpanels to serve the load.	N/A	N/A
Community Center	SCE Transformer	Pad-mounted transformer is in good condition and oversized to meet the load demand of the building	N/A	N/A
	LWV Switchgear	Switchgear is in good condition with adequate capacity to serve current loads.	N/A	N/A
Library	SCE Transformer	An older pad-mounted unit. The transformer is adequately sized to serve the current load.	N/A	N/A
	LWV Switchgear	An older style panel and in marginal condition.	Panel enclosure needs housekeeping	N/A
	SCE Transformer	Not Found	N/A	N/A
Gatehouse 2	LWV Switchgear	An older style panel and in adequate condition.	N/A	N/A

Table 1: Summary of Assessment Findings and Results

3 Introduction and Methodology

3.1 Introduction

As part of Task 1, the project team was tasked with performing an assessment of the current electrical infrastructure throughout the Laguna Woods Village (LWV) community for the Third Laguna Hills Mutual, United Laguna Hills Mutual, and the Golden Rain Foundation (GRF). This report summarizes the results of the assessment for GRF facilities. These components include a review representative of typical facilities for the LWV and a condition assessment for the electrical infrastructure.

The condition assessment contains detailed information associated with the electrical infrastructure components, including the overall condition of the equipment, code compliance issues, and recommended immediate and/or long-term action items. Figure 3 below shows an overview of the electrical infrastructure and the equipment needed to carry grid supplied electricity to the local consumer. This report will focus on the local infrastructure equipment, starting from the transformer to the end use.



Figure 3: Overview of the electrical infrastructure equipment from the grid supplied electricity to local consumption.

3.2 Assessment Methodology

The team's approach to complete this task included:

- ❖ Data Gathering⁶:
 - Establishing the existing demand and infrastructure baseline based on review of Southern California Edison (SCE) utility data.
 - Interviewing staff to develop an understanding of previous, current, and planned infrastructures.
 - Collecting and reviewing information and reports from previous energy studies and completed projects
- ❖ **Site Visits:** TRC engineers and TEC staff performed field visits to evaluate all seven of the GRF Clubhouses, Gate House #2, and the Library to gather information about existing electrical facilities and their condition. The assessment was based on the original request as well as evaluating the Library since it is a standalone building. The scope of the visual inspection included evaluating the condition of the existing electrical infrastructure as it was available to inspect. It did not involve functional testing of any equipment to assess operational adequacy. The team noted any current deficiencies at each location.
- ❖ **Assessment Report:** Develop a report with findings from infrastructure assessment. Inventory of equipment is listed in Appendix B.
- ❖ **Next Steps:** Present results to LWV.



Figure 4: Electrical Infrastructure Assessment Methodology

⁶ TRC and TEC worked to collect community-wide transformer data from SCE in order to provide a holistic assessment of total load capacity at the transformer level, but after lengthy discussions with SCE, it was determined that this information could not be shared due to confidentiality issues. The process to work with SCE to obtain data added an unforeseen amount of resources and time to the project. Appendix C outlines the timeline, correspondences, and challenges experienced while attempting to collect SCE transformer data.

3.3 Sampling Plan

3.3.1 Corporation Boundaries

The Laguna Woods electrical services are divided between the three corporations: GRF (Clubhouses and common areas), United Laguna Hills Mutual (residential and laundry areas), and Third Laguna Hills Mutual (residential and laundry areas).

GRF is responsible for seven clubhouses, five pools, two fitness centers, the equestrian center and trails, two garden centers, two golf courses, the tennis complex, plus the fine arts and crafts facilities. GRF oversees those important services residents count on: the private bus system, security patrols, gates, cable system, roads, parking lots, and the maintenance of all common buildings and properties. For purposes of this report, only GRF facilities were evaluated on the site visits. The boundaries of services for the corporations are provided in Appendix A.

3.3.2 Sampled Areas

Field visits were performed at all seven of the GRF Clubhouses, Community Center, Gate House #2, and the Library to gather information about existing electrical facilities and their condition. These facilities represent the major GRF energy usage and are 100kW or greater (except for the Library). Gate House #2 was selected as a representative example of the gate houses and constitutes a very small electrical load. A preliminary site visit was conducted by the project team on the 7th of November 2018 to become familiar with the site and equipment. The selected areas were inspected by the project team on the 19th and 20th of December 2018 with follow-up visits conducted on the 28th of January 2019 and 1st of August 2019.

3.4 Asset Condition Rating

All electrical equipment has a useful lifespan that is determined by the installation environment, equipment material types (steel, copper, porcelain, etc.), operating history, and obsolescence. Equipment that is installed in hot, humid, dusty or corrosive environments can have a significantly decreased lifespan depending on the severity. Also, equipment that is operated beyond or outside of its intended design limits can shorten its life. For example, a circuit breaker that is continuously overloaded will operate more times than designed and fail sooner than a properly-sized breaker. The requirement to upgrade equipment causes the end of life due to obsolescence. The original equipment may no longer be available or inadequate to serve the most recent electrical load. These factors are considered in evaluating all electrical equipment.

TRC rated the condition of the electrical equipment based on the Asset Condition Measurement, as shown in the example below (Table 2). These evaluation criteria were used

to rate the electrical equipment at each of the locations that were fielded. The ratings are provided for the electrical equipment in general with individual ratings for equipment that warrants more in-depth examination.

Based on conversations with maintenance staff, there is a preventative maintenance plan (PMP) in place, but it needs to be refined to be fully comprehensive for all equipment. This plan is in development for all electrical facilities throughout the community. In many cases, the equipment has been scored as a "3" to designate that more frequent corrective maintenance should be conducted. The exceptions are the areas that clearly show maintenance issues.

Also referenced was the Preliminary Energy Demand Side Management Report developed by IDS Group in January 2012 that addressed energy usage and focused on the use of Energy Management Systems (EMS) to manage the electric and gas usage by the GRF facilities. The data was very focused on specific improvement actions. Many of these recommendations have been implemented.

Finally, it has been verified that SCE performs an inspection of all of their pad-mounted equipment every five years. No action is needed on behalf of the LWV to initiate this inspection. However, it is recommended that if SCE equipment is found to be damaged, please reach out to your local SCE Planner to repair.

Asset Rating Score	Asset Age			Asset Condition		Asset Performance		Level of Maintenance		Asset Condition Rating	
	(Percent of Useful Life Remaining)	(Quality, Required Level of Maintenance)	(Reliability, Safety, Meets Industry Standards)	(Level of Preventive and Corrective Maintenance)	(Rating Description and Scoring Range)						
5	Asset new or nearly new 75% - 100%	Asset new or like new; no visible defects	Asset meets or exceeds all performance and reliability metrics, industry standards	No unfunded or deferred maintenance activities	Excellent 4.8 to 5.0						
4	Asset nearing or at its midlife point 50%-75%	Asset showing minimal signs of wear; some slight defects or deterioration	Asset generally meets performance and reliability metrics, industry standards	Corrective maintenance increasing; no skipped preventive or corrective maintenance	Good 4.0 to 4.7						
3	Asset has passed its midlife point 25%-50%	Some moderately defective or deteriorated components; expected maintenance needs	Occasional performance and reliability issues; may be substandard in some areas	More frequent corrective maintenance required and some minor component failures	Adequate 3.0 to 3.9						
2	Asset nearing or at end of its useful life 0%-25%	Increasing numbers of defects; deteriorating components; growing maintenance needs	Performance and reliability problems becoming more serious; substandard elements	Corrective maintenance activities frequently, including major components needing replacement or rehab	Marginal 2.0 to 2.9						
1	Asset passed its useful life	Asset in need of replacement or restoration; may have critically damaged components	Frequent performance and reliability problems; does not meet industry standards	Major component failures	Poor 1.0 to 1.9						
0					Non-operable or unsafe 0						
Enter Score Here	5	5	5	5	5						

Table 2: Electrical Equipment Asset Condition Measurement Evaluation Criteria and

3.5 Summary

A walkthrough of GRF's seven Clubhouses, Library, and Gate House #2, as well as a visual inspection of their electrical infrastructure was completed. The intent was to gather information on the electrical infrastructure conditions of each building to establish an accurate generalization of facility conditions. Photographs were taken of many of the facilities and are included in this report.

In general, the walkthrough yielded no overhead structures; all electrical equipment was underground. All Clubhouses contained electrical rooms with switches, panels, EMS Controls, meters, etc. Secondary transformers were present in the Clubhouses served with voltages below the SCE delivery voltage. The Community Center and Clubhouses 1 and 5 each had dedicated emergency backup generators present. Other backup generators were located at the Community Center, Security Services, Vehicle Maintenance, Broadband Service, Satellite Dish Service, and Communication Antenna Service. Refer to the sections below for details on the Clubhouses that have emergency generators as a backup power source.

The electrical equipment at the Clubhouses is generally in adequate to good condition, with the exception of Clubhouses 1 and 6, which require immediate repairs. Most of the equipment is original with some upgrades. Electrical equipment can last well over 40 to 50 years if installed and maintained properly. The requirement to upgrade equipment to add electrical load can cause obsolescence. The original equipment components (breakers, conductors, etc.) may no longer be available or inadequate to serve the most recent electrical load resulting in the need to replace with new equipment. These factors are considered in evaluating all electrical equipment. The asset condition assessment provided in Section 3.4 provides additional details on the evaluation criteria used to determine the asset condition.

The electrical panels at both Clubhouses 1 and 6 have significant corrosion from what appeared to be continued exposure to pool maintenance chemicals. It is recommended that the cause of the corrosion be remediated and that the corroded panels be repaired or replaced to prevent future outages and other electrical issues.

SCE equipment inspected included pad-mounted transformers that serve the Clubhouses, as shown below in Table 3. The table shows the maximum kW load seen by the SCE meter for each of the locations identified. This max kW info is used to determine if the SCE transformers are sized appropriately for the electrical load. There were also a few pieces of SCE switchgear at some locations that were observed, but not inspected. SCE is responsible for the maintenance of their electrical equipment.

Based on a meeting with SCE, any SCE equipment that serves LWV facilities and is deemed to be undersized by SCE, will be upgraded at SCE's expense. The exception is addition of solar installations, which are addressed under a different agreement.

The majority of the SCE equipment is of newer vintage and had been changed out within the last 10-15 years, except the transformers at Clubhouse 2. These are overhead transformers that were installed in an inaccessible enclosed area and most likely over 50 years old. These transformers are not a concern unless there have been electrical voltage issues or outages to those facilities. They are, however, much closer to the end of their useful life than the now standard pad-mounted SCE transformers.

Details and pictures for each site are shown below. A comprehensive list of the sampled areas and equipment is provided in Appendix B.

Location	Meter Number	Serv Acct Address	Annual Max kW (Billing)	Transformer ID	Transformer Latitude	Transformer Longitude	Transformer kVA
Laguna Woods Golf Club	222014-097222	23540 Moulton Pkwy	5	5472725	33.62051949	-117.7309159	300
Clubhouse 5	259000-072071	24262 Punta Alta	166	5143407	33.60837754	-117.7488723	300
Clubhouse 1	255000-008946	24232 Calle Aragon	182	5080695	33.61178437	-117.7161403	225
Clubhouse 4	V349N-012109	23501 Via Mariposa	156	5081215	33.61998744	-117.7228214	300
Laguna Woods Golf Club	223000-024112	23554 Moulton Pkwy	17	5082861	33.6204026	-117.729542	25
Clubhouse 2	355150-002198	24112 Moulton Pkwy	102	5081532	33.61418538	-117.7295721	100
Clubhouse 3	259000-039481	23822 Avenida Sevilla	144	5084072	33.60083419	-117.7132724	500
Gate House 10	222013-112327	24091 Avenida Sosiega	7	5081629	33.613327	-117.7459116	100
Clubhouse 6	223000-019289	5365 Algarrobo Cl6	35	5082496	33.61289454	-117.7496925	75
Gate House 2	222013-757934	1 Guard Hs Gate 2	6	5082167	33.60664716	-117.7088595	100
Gate House 9	222013-114650	22042 Calle Corta	5	5144472	33.60243796	-117.7465166	75
Gate House 8	222013-817539	22450 Santa Maria Ave Gh8	4	5080812	33.61550072	-117.737215	25
Gate House 3	222013-760178	25002 Moulton Pkwy	5	5124467	33.59990756	-117.7160954	75
Gate House 11	222013-115476	23950 Avenida Sosiega Gat	6	5081236	33.61510589	-117.7452077	100
Gate House 6	222013-993534	23581 Avenida De La Carlota	0	5083059	33.61878046	-117.7130197	75
Library	259000-055268	24262 Calle Aragon	40	5438821	33.61079089	-117.7152834	75
Clubhouse 7 Parking Lot	259000-050297	24227 Moulton Pkwy	53	5491688	33.61462046	-117.7321115	300
Community Center	V349N-004693	24351 El Toro Rd	417	5491866	33.61026666	-117.7317505	1500
Clubhouse 7	259000-048414	24111 Moulton Pkwy	142	5491688	33.61462046	-117.7321115	300
Greenhouse (Golf Club)	259000-054658	24122 Moulton Pkwy	86	5599860	33.61320835	-117.7274256	150
Gate House 1	322010-324926	24102 El Toro Rd	7	5080700	33.61141808	-117.7164419	75
Gate House 12	222013-853782	24111 1/2 Moulton Pkwy	0	5081023	33.61291389	-117.7290036	25
Gate House 5	222014-082190	24101 El Toro	14	5080687	33.61298421	-117.7180083	25
Gate House 7	322010-325244	24200 Calle Sonora	5	5083513	33.61055136	-117.7332481	100

*Highlighted rows indicate the facilities included within this report.

Table 3: Golden Rain Foundation Max Electrical Demand Load by Location

3.6 Clubhouse 1

3.6.1 Existing Equipment Description

Transformer

Clubhouse 1 is served with a 225kVA three-phase pad-mounted SCE transformer shown on Figure 5. This transformer is of an older vintage, but overall, the external condition of the transformer was rated 3.0 (Adequate) not rusted, damaged or visibly overloaded, based on the Asset Condition Measurement referenced in Section 3.4. The transformer was last inspected by SCE in 2014. Based on the 182kW (214kVA @ 85% power factor) max demand from Table 3, the transformer is sized adequately for the current load of Clubhouse 1. There is approximately 5% capacity available on this transformer based on nameplate data. Any additional loads will require potential upgrades by SCE. Actual transformer loading analysis is determined by SCE. No action is needed for this equipment.



Figure 5: SCE 225kVA 120V/208V Pad-mounted Transformer Servicing Clubhouse 1

Electrical Rooms/Panels

The electrical equipment in Clubhouse 1 consisted of three electrical rooms; the Main/Pool Room (#1), Kitchen Electrical Room (#2), and Office Electrical Room (#3). The Kitchen Electrical Room and Office Electrical Room are fed from the Main/Pool Electrical Room panel.

The main panel is a 277/480V panel that is unknown in size that looked to be the original equipment; size and date could not be verified from the equipment as the nameplate was worn off due to corrosion. There is one dry-type transformer (150kVA) to step the voltage

down to 120/208V used throughout the Clubhouse and pool area. Several subpanels, EMS controls, timers, and switches were presently serving the facilities. These electrical facilities are rated a 1.0 (Poor) due to the deterioration.

The Kitchen Electrical Room area consisted of a 225A main breaker with a 150kVA dry-type transformer to step the voltage down to 120/208V. The subpanels serve the kitchen area, recreational areas, and alarm system. Based on our observations, there were panels that were original installs and panels that had been added later to serve additional load. Dates on the newer panels indicate installation in 1991 with additional loads added to those panels as indicated by new positions added in the panel. The equipment in this room are rated as a 1.67 (Poor) based on the age and issues with outages.

The Office Electrical Room consists of a 225A main breaker and two dry-type transformers (150kVA and 45kVA) that step down the voltage to 120/208. The sub panels serve the offices, lights, the art gallery, and receptacles. There were also panels that had been added after the original installation for additional load. The equipment in this room is rated as a 1.67 (Poor) based on the age and issues with outages.

There were a couple of major issues observed in Clubhouse 1. First, the LWV maintenance personnel mentioned that there have been secondary voltage issues, where the voltage drop was excessive (down to 195V from 208V) and caused electrical problems, such as equipment, lights to flicker, and breakers to trip. It was further identified that the issue occurs when the heat pumps turn on during heavy cooling cycles. The problem appears to be that load was added onto the 120/208V side of the dry-type transformers in the Kitchen and Office Electrical Rooms and that they have exceeded their ability to serve the load and thus, the voltage drops. This is a serious issue and can cause equipment failure.

Second, the Main/Pool Electrical equipment is exhibiting signs of excessive rust and deterioration on many of the panels and other electrical equipment, such as timers, conduits, and electrical support equipment. This appears to be caused by continuous exposure to corrosive pool maintenance chemicals, such as chlorine and muriatic acid. The chemical odor in the electrical room was very strong. This can cause equipment failure resulting in outages and other electrical problems.

The LWV maintenance personnel mentioned that corroded electrical equipment is consistently changed out to prevent equipment failures. As an example, the conduits in Figure 6 were replaced approximately four years ago and are already showing signs of significant deterioration.

The corroded equipment presents an immediate hazard. The pool equipment and electrical equipment need to be separated to mitigate the deterioration. Refer to the recommendations

section below on equipment replacements. Figure 7 and Figure 8 are examples of electrical equipment in the Clubhouse 1 electrical rooms.

It was recently shared with the project team that there is a possibility that this clubhouse could be demolished and replaced with a new one. That, of course, would solve the issues observed.



Figure 6: Corroded Piping Found in Clubhouse 1 Main Electrical Room



Figure 7: Electrical Switchboard and Meter Found in Clubhouse 1 Main Electrical Room

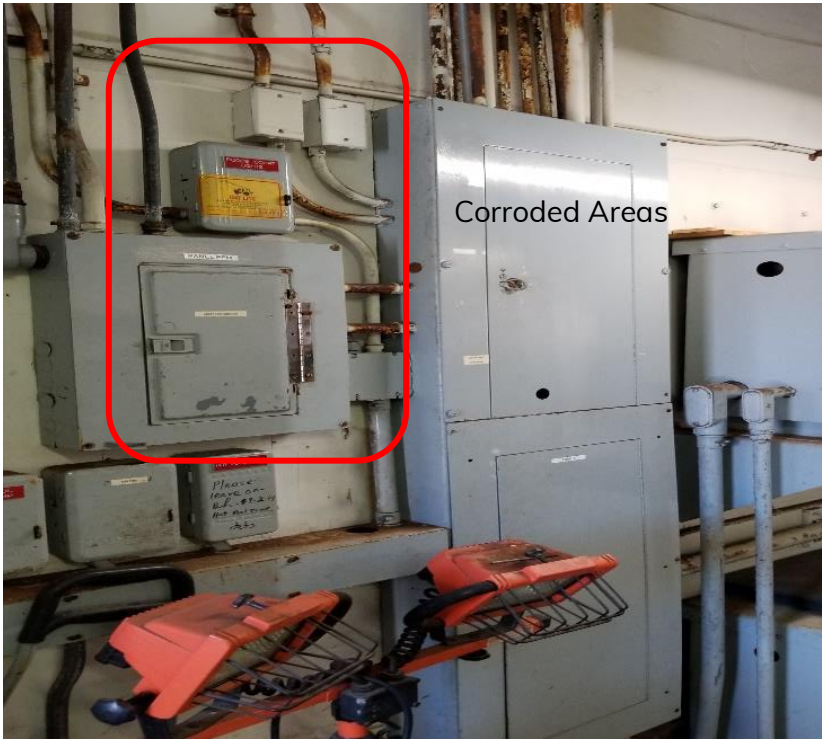


Figure 8: Rusted Electrical Equipment Found in Clubhouse 1 Main Electrical Room



Figure 9: Corroded Conduit Changed Out Four Years Ago Found in Clubhouse 1 Main Electrical Room

Emergency Generator

Clubhouse 1 has a 193.7 kVA diesel emergency generator (Figure 10). The generator appears to be in good condition. Maintenance records are current. This generator is rated 4.0 (Good) based on the Asset Condition Measurement referenced in Section 3.4. A generator program analysis was not part of this electric infrastructure assessment report scope.



Figure 10: Diesel Backup Power Generator at Clubhouse 1

3.6.2 Code Compliance & Safety

The condition of the electrical equipment in the Main Electrical Room in Clubhouse 1 is not in compliance and portions of the system are hazardous to operate. The overall Asset Condition Measurement rating for this equipment is 1.0 (Poor). The equipment requires immediate attention to ensure that there are no unplanned outages, equipment failure, or injury to personnel operating the equipment.

Additionally, there are issues with the low voltage and outages when HVAC loads turn on during high demand periods in the Kitchen and Office Electrical Rooms. A load analysis shall be conducted to determine the proper size of the dry-type transformers and other electrical equipment to eliminate the low voltage and outages.

3.6.3 Recommendations

Immediate Repairs and Short Term

Two immediate actions items have been identified based on the findings provided above:

Recommendations	Budget Cost
<ul style="list-style-type: none">• Immediately separate the pool equipment and electrical equipment to prevent further corrosion. The rusted electrical panels, conduits, and equipment then need to be replaced. Approximate costs to replace individual pieces of equipment are shown to the right.• Perform load study and upgrade equipment in the Kitchen and office electrical rooms to eliminate the low voltage and outages.	Main Panel: \$10,000 - \$15,000 Other Panels: \$1,000 - \$5,000 per panel Dry-type transformer: \$5,000 for 45kVA and \$15,000 for a 150kVA Electrical conduits: \$500-\$1,000 each

Long Term

Recommendations	Budget Cost
<ul style="list-style-type: none">A more costly alternative to ensure that the pool and electrical equipment are separated would be to build a new electrical room adjacent to the existing one to accommodate the new equipment.	New equipment for electrical room \$150K - \$200K
<ul style="list-style-type: none">After repairs are made and the cause of corrosion is alleviated, the electrical room should be monitored and inspected at least annually to confirm that no further deterioration arises. This should be standard practice for all the Clubhouses and supporting facility electrical rooms.	\$350/Inspection ⁷

3.7 Clubhouse 2

3.7.1 Existing Equipment Description

Transformers

Clubhouse 2 is served by an older (Mid 1960s) style set of overhead transformers in a secured area as shown on Figure 11. Overall, the external condition of the transformers is 2.33 (Marginal) based on the Asset Condition Measurement referenced in Section 3.4, with newer underground cable serving the switch and the transformers. This equipment is operated and maintained by SCE. The TRC team could not access the secured area to verify transformers sizes since access to this area is restricted with an SCE lock. The transformers are identified as 3-100kVA and the max kW load as shown in Table 3 is 102kW (120kVA @ 85% power factor), so there should not be any overload considerations. There is approximately 150% capacity available on these transformers based on nameplate information. Actual transformer loading analysis is determined by SCE.

⁷ Inspections are estimated to take between 2-3 hours per equipment room



Figure 11: SCE 3-100kVA 120V/208V Overhead Transformer Servicing Clubhouse 2

Electrical Rooms/Panels

The electrical rooms and panels were newly installed and rated 5.0 (Excellent) based on the Asset Condition Measurement referenced in Section 3.4. The main panel is an 800A, 277/480V panel replaced in 2016. The dry-type transformer is a 300kVA 277/480-120/208V in good condition. The subpanels are also in good condition. Emergency room panels are located in an adjacent room and are in good condition. This electrical room does not require any further action other than an annual inspection.



Figure 12: SCE 800A 277/480V Panel Servicing Clubhouse 2

Emergency Generators

An emergency generator is not present at Clubhouse 2.

3.7.2 Code Compliance & Safety

A majority of the electrical equipment in Clubhouse 2 is of a newer vintage and there were no immediate maintenance needs identified. Equipment was rated at a 4.5 (Good) based on the Asset Condition Measurement referenced in Section 3.4.

3.7.3 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
<ul style="list-style-type: none"> There were no immediate maintenance needs identified for the LWV electrical equipment. SCE should continue to perform the inspection of their equipment at the prescribed interval. 	N/A

Long Term

Recommendations	Budget Cost
<ul style="list-style-type: none">Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$350/Inspection

3.8 Clubhouse 3

3.8.1 Existing Equipment Description

Transformers

The SCE transformer serving Clubhouse 3 is a newer 500kVA 120/208 pad-mounted unit as shown on Figure 13. The exact date of manufacture and installation was not available on the equipment. The transformer was rated 4.0 (Good) based on the available info. The transformer is more than adequately sized to serve the 144kW (169kVA @ 85% power factor) max load shown in Table 3. There is approximately 195% capacity available on these transformers based on nameplate information. Actual transformer loading analysis is determined by SCE.



Figure 13: SCE 500kVA 120V/208V Pad-mounted Transformer Servicing Clubhouse 3

Electrical Rooms/Panels

The Clubhouse 3 electrical panels are of 1998 vintage and generally in good condition. The main panel is a 1600A 120/208V with several subpanels to serve the load, as shown on Figure

14. The equipment was rated at a 4.0 (Good) based on the Asset Condition Measurement referenced in Section 3.4.

Also, it was communicated to the project team that LWV plans to replace the HVAC system in Clubhouse 3. This project is currently in design and LWV should verify that the electrical system be considered to verify it meets codes prior to installation.



Figure 14: Main Panel 1600A, 120V/208V Servicing Clubhouse 3

Emergency Generators

An emergency generator is not present at Clubhouse 3.

3.8.2 Code Compliance & Safety

A majority of the electrical equipment in Clubhouse 3 is of a 1998 vintage, and there were no immediate maintenance needs identified. The equipment was rated at a 4.0 (Good) based on the Asset Condition Measurement referenced in Section 3.4.

3.8.3 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
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<ul style="list-style-type: none"> There were no immediate maintenance needs identified for the electrical equipment. SCE should continue to perform the inspection of their equipment at the prescribed interval. 	N/A
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Long Term

Recommendations	Budget Cost
<ul style="list-style-type: none"> Electrical equipment should be inspected at least annually to ensure the integrity of the equipment. 	\$350/inspection

3.9 Clubhouse 4

3.9.1 Existing Equipment Description

Transformers

The SCE transformer serving Clubhouse 4 is a newer 300kVA 120/208 pad-mounted unit as shown on Figure 15. The transformer was manufactured in 2011. The transformer was rated 4.0 (Good) based on the Asset Condition Measurement referenced in Section 3.4. The transformer is more than adequately sized to serve the 156kW (184kVA @ 85% power factor) max load shown in Table 3. There is approximately 63% capacity available on these transformers based on nameplate information. Actual transformer loading analysis is determined by SCE.



Figure 15: SCE 300kVA 120V/208V Pad-mounted Transformer Servicing Clubhouse 4

Electrical Rooms/Panels

The Clubhouse 4 electrical panels are of an older vintage and generally in adequate condition. The main panel is a 2000A, 120/208V with several subpanels to serve the load. The condition of the switchgear shown on Figure 16 was rated as a 3.67 (Adequate) based on the Asset Condition Measurement referenced in Section 3.4 due to its age.



Figure 16: Main 2000A 120/208V Switchgear Servicing Clubhouse 4

Emergency Generators

There is not an emergency generator present at Clubhouse 4; however, a generator crated in the parking area was observed during the site visit.

3.9.2 Code Compliance & Safety

A majority of the electrical equipment in Clubhouse 4 is of an older vintage, and there were no immediate maintenance needs identified. Equipment was rated at a 3.25 (Adequate) based on the Asset Condition Measurement referenced in Section 3.4.

3.9.3 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
<ul style="list-style-type: none">There were no immediate maintenance needs identified for the LWV electrical equipment. SCE should continue to perform the inspection of their equipment at the prescribed interval.	N/A

Long Term

Recommendations	Budget Cost
<ul style="list-style-type: none">Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$350/inspection

3.10 Clubhouse 5

3.10.1 Existing Equipment Description

Transformers

The SCE transformer serving Clubhouse 5 is an older 300kVA 120/208 pad-mounted unit as shown on Figure 17. The transformer was rated 3.0 (Adequate) based on the Asset Condition Measurement referenced in Section 3.4. It is in adequate condition because of the considerable amount of rust on the top and sides. The exact date of manufacture and installation was not available on the equipment. The transformer was last inspected by SCE in 2018. There is no need for immediate concern, but the unit does require paint maintenance by SCE.

The transformer is more than adequately sized to serve the 166kW (195kVA @ 85% power factor) max load shown in Table 3. There is approximately 54% capacity available on these transformers based on nameplate information. Actual transformer loading analysis is determined by SCE.



Figure 17: SCE 300kVA 120V/208V Pad-mounted Transformer Servicing Clubhouse 5

Electrical Rooms/Panels

The Clubhouse 5 electrical panels are an older vintage and generally in adequate condition. The panels appear to be at least 40 years old and possibly the original equipment installed to serve the Clubhouse. The rating for the switchgear is marginal at a 2.75 (Marginal) based on the Asset Condition Measurement referenced in Section 3.4. The equipment is adequate for the current load but has passed the midpoint of its useful life. The main panel is a 2000A 120/208V with several subpanels to serve the load. The nameplate is shown on Figure 18. The condition of the panels is adequate for current load. A majority of the subpanels appeared to be newer installations. The equipment was rated at a 3.5 based on the Asset Condition Measurement referenced in Section 3.4.



Figure 18: Main Panel 2000A, 120V/208V Servicing Clubhouse 5

Emergency Generators

Clubhouse 5 has a 193.7 kVA 277/489V diesel emergency generator. The unit is shown on Figure 19. The generator appears to be in good condition. Maintenance records are up to date and generators are exercised regularly according the LWV maintenance. This generator is rated 4.0 (Good) based on the Asset Condition Measurement referenced in Section 3.4. A generator program analysis was not part of the assessment report.



Figure 19: 194kVA Emergency Generator Servicing Clubhouse 5

3.10.2 Code Compliance & Safety

There were no immediate maintenance needs identified for equipment serving Clubhouse 5.

3.10.3 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
<ul style="list-style-type: none">There were no immediate maintenance needs identified for the electrical equipment. SCE should be contacted to paint the transformer that is serving the facility. SCE should continue to perform the inspection of their equipment at the prescribed interval.	N/A

Long Term

Recommendations	Budget Cost
<ul style="list-style-type: none">Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$350/inspection

3.11 Clubhouse 6

3.11.1 Existing Equipment Description

Transformers

The SCE transformer serving Clubhouse 6 is a smaller 75kVA 120/240 single-phase pad-mounted unit as shown on Figure 20. It is in good condition and was manufactured in 2012. The transformer was last inspected by SCE in 2018. The transformer was rated 4.0 (Good) based on the Asset Condition Measurement referenced in Section 3.4.

The transformer is more than adequately sized to serve the 35kW (41kVA @ 85% power factor) max load shown in Table 3. There is approximately 83% capacity available on these transformers based on nameplate information. Actual transformer loading analysis is determined by SCE.



Figure 20: SCE 75kVA 120V/240V Pad-mounted Transformer Servicing Clubhouse 6

Electrical Rooms/Panels

The Clubhouse 6 electrical panels are an older vintage and some in hazardous condition. The panels are corroded and in need of repair or replacement. Similar to Clubhouse 1, they appear to have been exposed to pool chemicals that caused the corrosion. The equipment appears to be at least 40 years old and possibly the original equipment installed to serve the Clubhouse. The main panel is a 400A 120/240V with several subpanels and timers to serve the load. All of the subpanels and timers are corroded (Figure 21 and Figure 22). The overall Asset Condition Measurement rating for this equipment is 1.75 (Poor) based on the Asset Condition Measurement referenced in Section 3.4.



Figure 21: Rusted Breaker Panel Servicing Clubhouse 6



Figure 22: Rusted Junction Box Servicing Clubhouse 6

Emergency Generators

An emergency generator is not present at Clubhouse 6.

3.11.2 Code Compliance & Safety

The condition of the electrical equipment in Clubhouse 6 is not in compliance and portions of the system are unsafe to operate. The equipment requires immediate attention to ensure that there are no unplanned outages, equipment failure, or injury to personnel operating the equipment.

3.11.3 Recommendations

Immediate Repairs and Short Term

Two immediate actions items have been identified based on the findings provided above:

Recommendations	Budget Cost
<ul style="list-style-type: none"> The cause of corrosion in the electrical room needs to be mitigated to ensure that further 	200A Main Panel: \$5,000 - \$10,000

<p>corrosion does not occur. Remove pool chemicals from the room.</p> <ul style="list-style-type: none"> The rusted electrical panels, conduits, and equipment need to be replaced as possible. 	<p>Other Panels: \$1,000 - \$2,000 per panel</p>
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Long Term

Recommendations	Budget Cost
<ul style="list-style-type: none"> After repairs are made and the cause of corrosion is alleviated, the electrical room should be monitored and inspected at least annually to confirm that no further deterioration arises. This should be standard practice for all of the Clubhouses and supporting facility electrical rooms. 	<p>\$200/inspection</p>

3.12 Clubhouse 7

3.12.1 Existing Equipment Description

Transformers

The SCE transformer serving Clubhouse 7 is a newer 300kVA 277/480 pad-mounted unit as shown on Figure 23. The transformer was manufactured in 2005. The transformer was rated 4.0 (Good) based on the Asset Condition Measurement referenced in Section 3.4. The transformer is more than adequately sized to serve the 142kW (167kVA @ 85% power factor) max load shown in Table 3. There is approximately 80% capacity available on these transformers based on nameplate information. Actual transformer loading analysis is determined by SCE.



Figure 23: SCE 300kVA 277/480V Pad-mounted Transformer Servicing Clubhouse 7

Electrical Rooms/Panels

The Clubhouse 7 electrical panels are an older vintage and generally in good condition. The main panel (Figure 24) is a 2000A, 120/208V with several subpanels to serve the load. The equipment is rated at a 3.0 (Adequate) based on the Asset Condition Measurement referenced in Section 3.4.



Figure 24: 400A 277/480V Main Panel Servicing Clubhouse 7

Emergency Generators

An emergency generator is not present at Clubhouse 7.

3.12.2 Code Compliance & Safety

There were no immediate maintenance needs identified. Equipment was rated at a 3.0 based on the Asset Condition Measurement referenced in Section 3.4.

3.12.3 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
<ul style="list-style-type: none">There were no immediate maintenance needs identified for the electrical equipment. SCE should continue to perform the inspection of their equipment at the prescribed interval.	N/A

Long Term

Recommendations	Budget Cost
<ul style="list-style-type: none">Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$350/inspection

3.13 Community Center

3.13.1 Existing Equipment Description

Transformers

The SCE transformer serving the Community Center shown in Figure 25 is 1500kVA 277/480V and in good condition. The transformer was rated 4.0 (Good) based on the Asset Condition Measurement referenced in Section 3.4. The transformer is more than adequately sized to serve the 417kW (490kVA @ 85% power factor) max load shown in Table 3. The transformer is sized approximately three times as large for the load it serves. There is approximately 206% capacity available on these transformers based on nameplate information. Actual transformer loading analysis is determined by SCE.



Figure 25: SCE 1500kVA 277/480V Pad-mounted Transformer Servicing the Community Center

Electrical Rooms/Panels

The electrical equipment in the Community Center is a 2000A 277/480V section and is in good condition with a rating of 4.0 (Good) based on the Asset Condition Measurement referenced in Section 3.4. There are three 600A subpanels, one for each of the floors of the building and two circuits for the two elevators.



Figure 26: 2000A, 277/480V Main Switch Serving the Community Center

Emergency Generators

In 2002, a 162KVA standby generator and Automatic Transfer Switch was added to the system to provide backup power to critical loads during outages. The generator is exercised regularly and is in good condition.

3.13.2 Code Compliance & Safety

There were no immediate maintenance needs identified.

3.13.3 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
<ul style="list-style-type: none">There were no immediate maintenance needs identified for the electrical equipment. SCE should continue to perform the inspection of their equipment at the prescribed interval.	N/A

Long Term

Recommendations	Budget Cost
<ul style="list-style-type: none">Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$350/Inspection

3.14 Library

3.14.1 Existing Equipment Description

Transformers

The SCE transformer serving the Library is an older 75kVA, 120/208V pad-mounted unit as shown on Figure 27. The size was not available on the unit in the field, however, the size information was provided in Table 3. The transformer was rated 3.00 (Adequate) based on the Asset Condition Measurement referenced in Section 3.4. The transformer is more than adequately sized to serve the 40kW (47kVA @ 85% power factor) max load shown in Table 3. There is approximately 60% capacity available on these transformers based on nameplate information. Actual transformer loading analysis is determined by SCE. The equipment was rated as 3.5 (adequate condition) based on the Asset Condition Measurement referenced in Section 3.4.



Figure 27: SCE 75kVA 120/2080V Pad-mounted Transformer Servicing the Library

Electrical Rooms/Panels

The 400A 120/208V Main panel (Figure 28) is located outside of the Library. It is an older style panel and rated at a 3.0 (Adequate) based on the Asset Condition Measurement referenced in Section 3.4. All the breakers for the Library are located inside this panel enclosure.



Figure 28: 400A 120/208V Main Panel Servicing the Library

Emergency Generators

An emergency generator is not present at the Library.

3.14.2 Code Compliance & Safety

There were no immediate maintenance needs identified.

3.14.3 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
<ul style="list-style-type: none"> There were no immediate maintenance needs identified, however, it is recommended to reduce the clutter inside the enclosure. 	N/A

Long Term

Recommendations	Budget Cost
<ul style="list-style-type: none"> Electrical equipment should be inspected at least annually to ensure the integrity of the equipment. 	\$100/Inspection

3.15 Gatehouse 2

3.15.1 Existing Equipment Description

Transformers

The SCE transformer serving Gatehouse 2 was not located in the field; however, as indicated in Table 3, SCE provided information that it is 100kVA. The transformer servicing the Gatehouse most likely serves other residences, and the small amount of electrical load, 6kW (7kVA @ 85% power factor) max load, is minor to the 100kVA size.

Electrical Panel

The 60A 120/240V Main panel (Figure 29) is located outside of the Gatehouse. It is an older style panel and in adequate condition. All the breakers for the Gatehouse are located inside this panel. The equipment is rated as 3.0 (Adequate) based on the Asset Condition Measurement referenced in Section 3.4.



Figure 29: 60A 120/240V Main Panel Servicing Gatehouse 2

Emergency Generators

An emergency generator is not present at Gatehouse 2.

3.15.2 Code Compliance & Safety

There were no immediate maintenance needs identified.

3.15.3 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
<ul style="list-style-type: none">There were no immediate electrical maintenance needs identified for the electrical equipment.	N/A

Long Term

Recommendations	Budget Cost
<ul style="list-style-type: none">Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$50/Inspection

4 Summary and Next Steps

The TRC team completed a walkthrough and visual inspection of the electrical infrastructure for Golden Rain Foundation Clubhouses, Library, Community Center, and one of the Gatehouses. The assessments conducted at the specific locations in this report are representative of the existing electrical infrastructure for the GRF facilities. Below is a summary of the assessment findings:

- The SCE transformers were three-phase pad-mounted transformers in varying condition depending on replacement dates. A majority of the SCE equipment is of newer vintage and had been changed out within the last 10-15 years, except the transformers at Clubhouse 2. These are overhead transformers that were installed in an inaccessible enclosed area and most likely over 50 years old.
- Transformer load information was requested from SCE to determine if the SCE transformers are sized appropriately for the electrical load. Table 3 provides the maximum kW load seen by the SCE meter for each of the locations identified. Based on the load information provided, the transformers identified at the Clubhouses, Library, and Community Center are sized adequately for the current load.
- The majority of the GRF electrical equipment is original to the facility, but there have been significant upgrades (main panel replacement; see section 3.7 for additional details) to Clubhouse 2 and other additions throughout the GRF clubhouses. The electrical equipment at the Clubhouses is generally in adequate to good condition, with the exception of Clubhouses 1 and 6, which require immediate repairs.
- The electrical panels at both Clubhouses 1 and 6 have significant corrosion from what appeared to be continued exposure to pool maintenance chemicals. It is recommended that the cause of the corrosion be remediated and that the corroded panels be repaired or replaced to prevent future outages and other electrical issues.
- LWV maintenance personnel identified that Clubhouse 1 is experiencing significant voltage issues. Added electrical load over the years has burdened the existing system and caused low voltage issues when heat pumps cycle through the heating and cooling cycles.

In the short term, the electrical equipment corrosion issues need to be addressed at Clubhouses 1 and 6 along with the voltage issue at Clubhouse 1. It was recently communicated to the project team that Clubhouse 1 may be demolished and rebuilt. The status of rebuilding Clubhouse 1 needs to be taken into consideration when determining the

repairs at that location. The assessment identified \$180K-\$200K in immediate recommendations for the facilities that were inspected⁸.

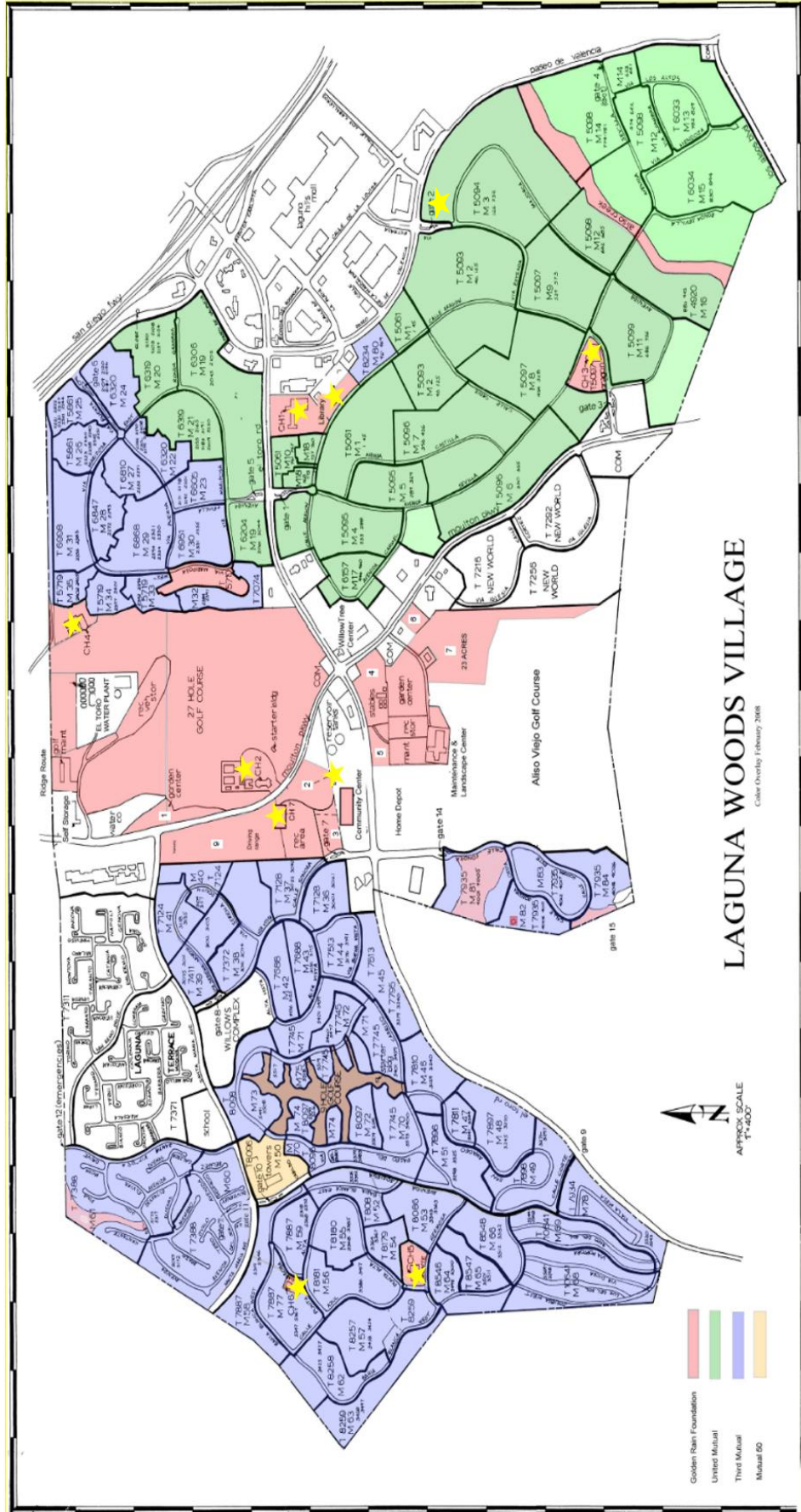
**Total cost for immediate recommendations estimated between
\$180,000 - \$200,000**

The findings of this assessment were concurrently used to inform the feasibility study of a microgrid as part of the Task 2 scope. Currently, Task 2 is focused on the feasibility of a microgrid system at the Community Center and Clubhouse 7.

⁸ \$20k was added on to account for any upgrades to sites that were not inspected.

5 Appendix A – Inspected Areas

The Clubhouses, Gate House #2, Community Center, and Library inspected are indicated on the map below with a yellow star.



6 Appendix B – Electrical Infrastructure Condition Summary

Location	Equipment	Asset Age	Asset Condition	Asset Performance	Asset Condition Rating	Action Items	Photo Reference
Clubhouse 1	SCE Transformer	3	3	3	Adequate (3.0)	NA	Figure 5
	LWV Switchgear Main Room	1	1	1	Poor (1.00)	Eliminate cause of corrosion. Repair or replace corroded equipment	Figure 7 Figure 6 Figure 8 Figure 9
	LWV Switchgear Kitchen Room	2	2	1	Poor (1.67)	Assess and replace undersized equipment. Transformers, conductors or breakers.	N/A
	LWV Switchgear Kitchen Room	2	2	1	Poor (1.67)	Assess and replace undersized equipment. Transformers, conductors or breakers.	N/A

Location	Equipment	Asset Age	Asset Condition	Asset Performance	Asset Condition Rating	Action Items	Photo Reference
	Emergency Generator	4	4	4	Good (4.0)	Maintain per manufacturer's recommendations	Figure 10
Clubhouse 2	SCE Transformers	2	2	3	Marginal (2.33)	NA	Figure 11
	LWV Switchgear	5	5	5	Excellent (5.0)	Annual Inspection	Figure 12
Clubhouse 3	SCE Transformer	4	4	4	Good (4.0)	NA	Figure 13
	LWV Switchgear	4	4	4	Good (4.0)	Annual Inspection	Figure 14
Clubhouse 4	SCE Transformers	4	4	4	Good (4.0)	NA	Figure 15
	LWV Switchgear	3	4	4	Adequate (3.67)	Annual Inspection	Figure 16
Clubhouse 5	SCE Transformer	3	3	3	Adequate (3.0)	NA	Figure 17
	LWV Switchgear	2	3	3	Marginal (2.67)	Annual Inspection	Figure 18
	Emergency Generator	4	4	4	Good (4.0)	Maintain per manufacturer's recommendations	Figure 19
Clubhouse 6	SCE Transformers	4	4	4	Good (4.0)	NA	Figure 20

Location	Equipment	Asset Age	Asset Condition	Asset Performance	Asset Condition Rating	Action Items	Photo Reference
	LWV Switchgear	2	1	2	Poor (1.75)	Eliminate cause of corrosion. Repair or Replace corroded equipment	Figure 21 Figure 22
Clubhouse 7	SCE Transformer	4	4	4	Good (4.0)	NA	Figure 23
	LWV Switchgear	3		3	Adequate (3.0)	Annual Inspection	Figure 24
Community Center	SCE Transformer	4	4	4	Good (4.0)	NA	Figure 25
	LWV Switchgear	4	4	4	Good (4.0)	Annual Inspection	Figure 26
Library	SCE Transformer	3	3	4	Adequate (3.33)	NA	Figure 27
	LWV Switchgear	3	3	3	Adequate (3.0)	Annual Inspection	Figure 28
Gate House #2	SCE Transformer				Not Found	NA	NA
	LWV Switchgear	3	3	3	Adequate (3.0)	Annual Inspection	Figure 29

7 Appendix C – SCE Correspondence Timeline

Laguna Woods Data Request, Timeline, and Issues

- August 22nd, 2018 – Requested the following in an email from Christian Torres
 - “...we’re looking for the following attributes ideally in spreadsheet form:
 - Physical location
 - Capacities
 - Approximate latitude/longitude
 - Accounts that correspond to them for meters on Laguna Woods Village customer accounts (common areas).”
- August 23rd – Christian Torres introduces TEC to Loren Palmer to support
 - Loren confirmed that we are unable to share specific information on SCE infrastructure and SCE needs to understand what the end goal for this project is. Does LWV plan to increase load?
- Sept. 12th – TEC follows up with SCE to understand denial request for information and whether or not SCE is able to provide *any* information into what parts of the electric infrastructure the utility owns vs what Laguna Woods is responsible for? At this time, SCE is supposedly working on part of the data request.
- November 5th, 2018 – After receiving LWV customer meter specific data, RH follows-up with Loren Palmer at SCE. Meter data received, but no transformer data that was in original request. Rebecca shares an example of another utility’s GIS map (redacted), for demonstration and requests a GIS distribution map from SCE.
- November 7th – Jad Farrah, Distribution Engineer, from SCE calls Rebecca and requests meter data for the LWV accounts to potentially add transformer data to. He is still following up internally to see what they can and cannot provide
- November 7th – Rebecca provides SCE with the meter information they have on file for LWV customers
- November 8th: Jad shares that the info has been shared with his Field Engineering team and he does not have access to any GIS information
- November 14th – Rebecca follows up with SCE to request updates on expected data
- November 19th - Rebecca follows up with SCE to request updates
- Nov 27th - Rebecca follows up with SCE to request updates
- December 12 – Rebecca emails Jad email string highlighting the original data request chain showing request has been ongoing for 6 months

- December – Jad/SCE is supposedly working on the data request
- January 13th – Rebecca follows up with SCE to request updates
- January 14th – SCE provides an invoice for the data they were able to collect.
- January 21 – TEC reiterates original data request and what they assumed SCE would be sharing before paying invoice
 - GPS coordinates for the transformers – “We’ll need to know where the transformers are located if they are going to serve additional loads, such as the EV chargers.
 - Max load of each meter (kVA) - This will allow our team to evaluate if the transformers are maxed out, or if they could handle some added load.”
- January 23rd – SCE will look into how much the invoice will change for the additional requested data
- Jan 30th – SCE shares their team is trying to get the data
- February 6 – TEC follows-up with SCE for the data
- February 6 – SCE calls TEC to notify they can’t provide the data as requested and asks TEC to use meter information to calculate the Transformer loads
- Feb 11th – TEC pays invoice for Data
- Feb 18th – TEC follows up with SCE about receipt of invoice payment, no responses
- Feb 19th – SCE shares they didn’t receive payment
- Feb 25 – SCE still hasn’t received payment
- Feb 26 – TEC cancels check because SCE contact was not routed the payment and submits payment electronically, expects SCE receipt within 48 hours
- March 5th – TEC follows-up with SCE to determine if payment was received
- March 13th – SCE finally receives payment
- March 14th – SCE sends data to Chris Naylor
- March 18th – SCE sends GRF data that wasn’t shared initially
- March 19th – TEC requests call with SCE to discuss data issues
- March 22nd – TRC, TEC, and SCE have call to discuss missing data
 - No way to determine total transformer load information given that we don’t have all of the representative meters & incomplete location data
- April 18th – SCE shares that they cannot share the data required due to customer Confidentiality Rules
 - We later find out this is the 15/15 Rule

- April 22nd – TEC reaches out to alternative contacts we have at SCE – Javier Mariscal for support on Data Request
- April 26th – Call with Javier at SCE to discuss data request
 - Javier suggested asking LWV if they would want to be involved in collaborating with SCE. Javier thought we had a good case to try and elevate this within SCE – LWV is trying to do the right thing by electrifying their fleet. Javier requests a summary of the problem, data requested, and let him know who else we (or LWV) have tried to involve from SCE.
- April 30th – Summary provided to Javier
- May 3rd – Javier indicates he will reach out to “Local Planning team”/ Jad & Steve, to coordinate efforts
- May 3rd week: TRC reaches out to Jad/Steven with Planning to identify pathways to continue proceeding to obtain information
- May 9th – Rebecca requests Jad’s supervisors details and asks about 15/15 rule
- May 14th – Jad indicates his team is scheduling a meeting to discuss the data request, Rebecca asks if TEC Project Team can participate in person. Jad says the 15/15 rule is not the reason they can’t share data (This is not what he had shared on the phone in recent conversations)
- May 15th – Jad requests information Rebecca had suggested as approach to Plan B
- May 15th – Rebecca reiterates specific and original request to SCE and clarifies that the other information (Plan B) is secondary to initial request
 - GPS coordinates and sizes for the transformers - We referenced SCE’s DERIM map while in the field and unfortunately, found that the map was missing transformers and switchgears based on our field observations. We need to know where the transformers are located, sizes and what LWV meters they serve (we have a CISR for LWV meters) so that we can evaluate if they can serve additional loads, such as the EV chargers.
- May 16th – Jad resends data originally provided because he thinks it’s addressing our original and reiterated request.
- May 16th – Rebecca reminds Jad that we already received this information and even had a follow-up call with him to explain what the gaps were
- May 17th – Jad shares that Account Representative, Christian Torres, will be setting up a call with us to discuss our questions or concerns
- June 19th – Meeting with SCE to discuss transformer data, 2pm-3:30pm

11/14/2018

Ernesto Munoz
VMS
24351 El Toro Road
Laguna Woods, CA 92636

Subject: Proposed Scope of Work for United Mutual and Third Mutual

Dear Ernesto,

The Energy Coalition (TEC), with support from TRC, would like to provide United Mutual and Third Mutual the below Scope of Work for approval prior to moving forward on implementation and to ensure we are all aligned with expectations on scope and budget should we be approved to proceed. We have summarized our plans to address the priorities identified by the Mutuals below. We have also included any key assumptions made to arrive at these budget estimates. The total budget for Tasks 1 and 2 is \$77,000 between Third Mutual and United Mutual.

Task 1: Perform assessment of community's current electrical infrastructure

Budget: \$28,000 (approximately 215 hours)

Timing: Q4 2018 - Q1 2019

The Team's approach will be to perform a baseline assessment, including a holistic review of the community's electrical systems and infrastructure for the current state. This task will include, but is not limited to the following:

- Establish existing energy demand and infrastructure baseline.
 - Review SCE utility data including: electrical loads on feeders and lateral lines, existing single line diagram to determine existing power service capacity and configuration.
 - Review existing facility information.
 - Develop understanding of ownership for grid and supply side electrical infrastructure
 - Conduct field visits of the community to fill in gaps in facility and infrastructure data
 - Review of previous energy studies and completed projects
- Develop inventory of transformers based on review of SCE documentation and/or field observations.

- Interview staff to confirm understanding of previous, current, and planned infrastructure upgrades
 - Collect information on Pushmatic Panel Replacement project & schedule
- Conduct load studies to confirm that adequate capacity exists in the existing service and distribution switchgear. The load study may involve metering up to two points for power, amps and volts over at least a week long period.
- Verify that 100-amp service is sufficient based on a sampling of building types representative of the community.

Assumptions

- Utility data will be provided in Excel format
- Utility infrastructure will be provided in Facility Maps
- Assumes that current load information will not be available from the utility and as a result, in-field load studies will be performed.
- Assumes that a portion of site work and interfacing with stakeholders will be done in parallel between the Mutuals and GRF scope.
- Assessment will be based on a sampling of buildings representative of the community and those with known issues.
 - VMS management analyst will support the team to determine what this sample consists of.

Deliverable

- Develop report with findings from infrastructure assessment.

Task 2: Develop a Community-wide strategy for electrical infrastructure upgrades & EV charger station installation

Budget: \$49,000 (approximately 350 hours)

Timing: Q4 2018 - Q1 2019

Based on the assessment of the community's electrical infrastructure, the team will develop a community-wide strategy for potential upgrades needed to serve current, 5 and 10-year load requirements and the corresponding electrical infrastructure to meet those demands. The plan will evaluate increased system loads from the additional electric vehicle (golf carts & cars) charging and will identify if it is feasible to install chargers based on current conditions as well as identify electrical facility upgrades required. The plan will include both a technical solution and a financial assessment of the recommendations.

The team will develop an EV charging station roadmap that will analyze EV charging options, locations and financial models to develop a plan for implementation. The resulting strategy will serve as a vision for the community with quantitative goals and a practical guide for how to achieve these goals.

This task will include, but is not limited to the following:

- Develop load growth forecasts for future energy demands with a focus on electric vehicles (golf carts and cars)
- Develop understanding of the community's adoption of electric vehicles
 - Collect data on growth of EV & golf cart use in community
 - Collect and review previous EV studies completed for community
 - Identify locations of existing EV charging infrastructure
 - Understand current usage
 - Analyze growth curves and make projections for increases in EV use community wide
 - Collect feedback from boards on preferred charging types
 - Survey stakeholders to gain insight into interest in purchasing EVs, understand driving patterns
- Understand existing rules in the covenants, conditions and restrictions (“CC&Rs”) that would affect the installation of charging stations in common areas and private areas
- Provide high-level information on available chargers in the market
- Compare and contrast charging infrastructure implementation options including financial implications to HOAs and residents
- Identify local, state and federally-funded charger deployment projects
- Assess grant, rebate, and financing opportunities
- Develop a 10 year energy load forecast including the additional of EV charging stations at the residential and community level.
- Optimal EV charging station locations will be identified based on the following:
 - Availability of power - review location of existing electrical service with respect to the proposed location of the EV chargers and assess extent of work related to new electrical conduits, panels and transformer for feeding new loads. The total available capacity on circuits for additional EV will be evaluated to identify maximum number of chargers. Energy efficiency improvements for other power consumptions may be identified to free up service capacity in constrained situations.
 - Constructability - minimize disturbance to existing infrastructure (i.e., cutting, trenching, and drilling required for new conduit).
 - Mounting - wall vs. dual mount
 - Environmental Conditions - minimize exposure of charging equipment to the elements, if possible.
 - Confirm community rules and regulations for siting EV charging stations to integrate into any recommendations
- Determine the estimated cost, sequencing and timelines of upgrades to inform capital improvement upgrades

- Present infrastructure assessment and proposed improvement schedule to stakeholders

Assumptions

- No additional community solar installations
- No scenarios of significant additional residential solar installations
- Growth curves of EV adoption based on community-wide EV data and market studies to inform a strategy for optimal installation of EV charging stations
- The upgrade recommendations will focus efforts on carports attached to laundry room meters and parking garages under 3 story buildings given load impacts of EVs specifically
 - There have been no noted challenges with additional loads to single family homes
- Assumes recommended medium and long-term infrastructure upgrades are pursued to ensure electric infrastructure could accommodate additional load

Deliverable

- Roadmap for Electrical Infrastructure Upgrades & EV Charger Installation

TEC and TRC have already initiated the data collection and review process. Should the work plan be approved, we will move forward on tasks 1 and 2.

We look forward to your feedback and please let us know if you have any questions.

Thank you,



Rebecca Hausheer



UNITED LAGUNA HILLS MUTUAL ELECTRICAL INFRASTRUCTURE ASSESSMENT

Prepared by The Energy Coalition with TRC
on behalf of Laguna Woods Village

October 4, 2019

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1 List of Electric Infrastructure Definitions

- **Dry-Type Transformer** - A solid dielectric device that is installed underground in a vault that reduces the voltage to a usable level.
- **Electrical Equipment** – A general term to describe materials, fittings, devices, appliances, fixtures, and apparatus used in connection with electrical facilities.
- **Emergency Panels** – Panels that are dedicated to maintaining electrical service to critical loads (some lighting, fire systems, computers, etc.) during system outages.
- **Energy Management System (EMS)** – Controls that monitor and optimize the energy usage for electrical facilities.
- **Feeder Line** – A high voltage (12,000V) SCE electrical line that serves the LWV electrical facilities.
- **Main Panel** – The LWV panel that accepts the SCE service for each of the facilities.
- **Pad-Mounted Transformer** – An oil filled device that is mounted on a concrete or composite pad that reduces the voltage to a usable level throughout LWV.
- **Sub-Surface Transformer** – An oil filled device that is installed underground in a vault that reduces the voltage to a usable level.
- **Sub-Panel** – A separate smaller electrical panel that is fed from a larger piece of switchgear and serves other electrical load.
- **Switchgear** – A single electrical panel or assembly of panels on which are mounted switches, fuses, bus gear, instruments, and other electrical equipment used to serve the electrical load.
- **Service Line** – A low voltage (277/480V, 120/208V or 120/240V) line that serves LWV electrical facilities.
- **Transformer** – An apparatus used to reduce or increase the voltage. In the case of these reports, the transformers are used to reduce the voltage to a usable level (277/480V, 120/208V or 120/240V), so that electrical loads can be served.
- **Voltage** - Voltage is what makes electric charges move. It is the 'push' that causes charges to move in a wire or other electrical conductor. It can be thought of as the force that pushes the charges, but it is not a force.

2 Executive Summary

Laguna Woods Village (LWV) is a gated retirement community with a population of approximately 16,000 residents. The governance of the community is organized under the California Non-Profit Mutual Benefit Corporation Law. There are four such corporations, three of which are mutual housing corporations (Mutuals) and the fourth is the Golden Rain Foundation (GRF). The community was constructed in 1963 and has an aging infrastructure. The residents have experienced blown fuses, transformer failures, and other electrical issues consistent with aging electrical infrastructure. Additionally, the residential mutuals have added electrical loads over the years, such as individual air conditioners, washers and dryers, and plug-in electric vehicle (EV) chargers.

United Mutual contracted The Energy Coalition (TEC) and TRC to conduct an assessment of the current community electrical infrastructure and prepare a community-wide strategic plan for electrical infrastructure upgrades and EV charging station installation. This electrical infrastructure assessment will provide information to the community to gain an understanding of the existing LWV and Southern California Edison (SCE) infrastructure capabilities to determine what additional electrical loads can be added based on current conditions and identify where upgrades are required to accommodate any additional load. As shown in Figure 1, this assessment of current electrical infrastructure is referred to as Task 1 in the approved Scope of Work for United Mutual. From these results, a strategic action plan will be developed as the approved Task 2 to identify potential upgrades and the corresponding electrical infrastructure needed to serve current, 5-, and 10-year load requirements.

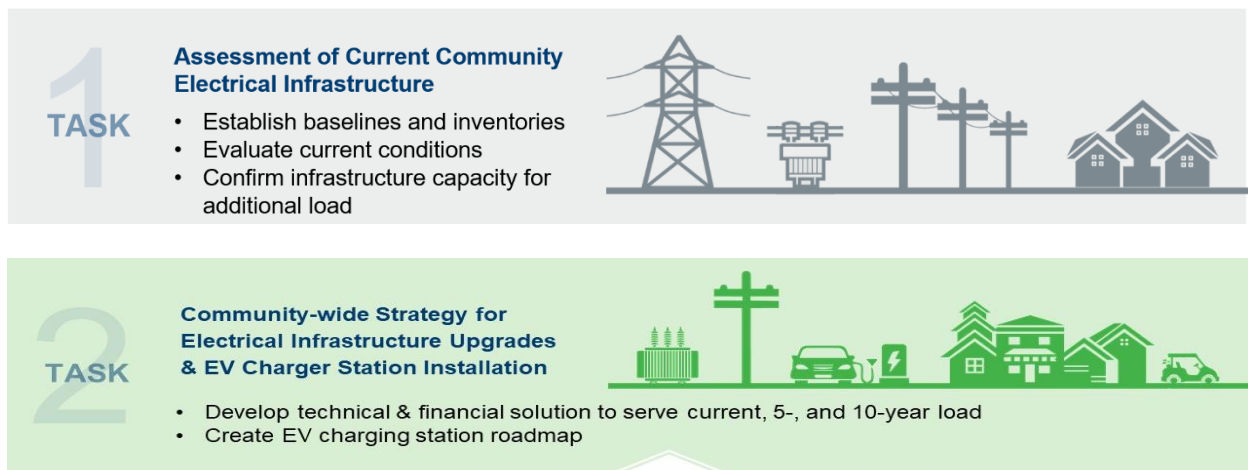


Figure 1: Overview of Tasks

To accomplish the assessment and provide recommendations to reduce electrical outages for improved performance of the system, TEC and TRC conducted field visits to a sampling of

United Laguna Hills Mutual common laundry areas and carports to visually assess the existing LWV and SCE electrical equipment. This report summarizes the results of the assessment for United Mutual facilities. These components include a review of selected sites to represent the facility portfolio and a condition assessment for the electrical infrastructure.

The condition assessment contains detailed information associated with the electrical infrastructure components, including the overall condition of the equipment, code compliance issues, and recommended action items.

The facilities had a variety of both original and upgraded electrical equipment. TRC provided a preliminary analysis of the potential cost implications for the recommended action items. The assessment identified \$30K-\$40K in immediate repair items, however, **some of these items need to be investigated further within Task 2 to make a final recommendation on the roadmap.**

Within United Mutual’s facilities, there are a total of 163 laundry rooms¹ and 805 carports in need of infrastructure upgrades. Assuming that similar facilities across the community require the same upgrades as those listed in Table 1, the total *estimated* costs to upgrade the electric infrastructure community wide is **\$1,860,000 - \$2,050,000²**.

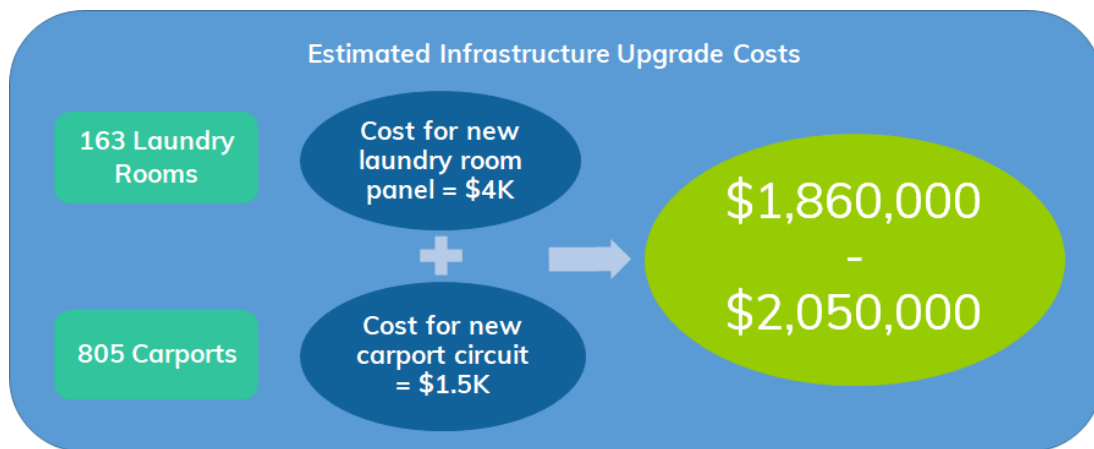


Figure 2: Projected costs for the recommended upgrades to United Mutual’s electrical infrastructure

¹ There are a total of 175 laundry rooms, but 12 laundry rooms have upgraded panels to account for the solar PV systems connected to them so they were excluded from calculations.

² The range is based on a 10% contingency added to the total estimated costs.

Table 1 provides a summary of the assessment findings and conditions per facility³. Section 4 provides more detailed descriptions of the conditions and immediate recommendations.

Location	Equipment	Overall Existing Condition ⁴⁵	Immediate Recommendations	Budget Cost ⁶
Laundry 89	SCE Transformer	The single-phase, pad-mounted transformer is in excellent condition.	N/A	N/A
	LWV Switchgear	The main panel in the laundry rooms is 125A panels. The existing laundry panel is the original panel with the original breakers and is in poor condition. The laundry room also houses the circuit breaker that serves the adjacent carports. The circuit is undersized for the current load.	Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. A new 20A circuit is needs to be added for each carport.	\$1,500/Circuit \$4,000/Panel
Laundry 90	SCE Transformer	The single-phase, pad-mounted transformer is in excellent condition.	N/A	N/A

³ See Appendix A for a site map.

⁴ See table 2 on page 13 for the criteria used to rate existing conditions.

⁵ See Section 4 of this report for details on the equipment, and Appendix B for a scoring matrix of each piece of equipment evaluated.

⁶ These costs are engineering estimates based on material and labor costs to provide new panels or additional circuits.

Location	Equipment	Overall Existing Condition ⁴⁵	Immediate Recommendations	Budget Cost ⁶
Laundry 90 (Contd.)	LWV Switchgear	<p>The main panel in the laundry rooms is 125A panels. The laundry panel is a subpanel fed by the new panel installed to accommodate the solar installation at L90. The existing laundry panel is the original panel with the original breakers and is in poor condition. The new panel that was installed for the solar equipment at L90 was rated in good to excellent condition.</p> <p>The laundry room also houses the circuit breaker that serves the adjacent carpports. The circuit is undersized for the current load.</p>	<p>Immediate repairs need to occur on the carpport circuits that are fed from the laundry room panels. A new 20A circuit needs to be added for each carpport.</p>	\$1,500/Circuit
	Solar Panel	<p>There is a 102.1 kW solar installation at L90 and the equipment is in excellent condition.</p>	None	N/A
	SCE Transformer	<p>The transformer is an older style of unknown size in adequate condition.</p>	NA	N/A
Laundry 23	LWV Switchgear	<p>The main panel in the laundry room is a 125A subpanel fed by the new panel installed to accommodate the solar installation. The laundry panel has been changed to a new style and has some physical spaces for any additional load if the National Electrical Code (NEC) calculations support it. The new panel is in good condition.</p>	<p>Immediate repairs need to occur on the carpport circuits that are fed from the laundry room panels. A new 20A circuit needs to be added for each carpport.</p>	\$1,500/Circuit

Location	Equipment	Overall Existing Condition ⁴⁵	Immediate Recommendations	Budget Cost ⁶
		The laundry room also houses the circuit breaker that serves the adjacent carports. The circuit is undersized for the current load.		
	Solar Panel	There is a 90.7kW solar installation at L23. The equipment was installed in 2017 and interconnected to the SCE grid. The equipment is in excellent condition.	None	N/A
	SCE Transformers	SCE transformer is a newer style and in excellent condition.	N/A	N/A
Laundry 31	LWV Switchgear	The existing laundry panel is an upgraded sub-panel recently installed with the solar upgrade in excellent condition. The laundry room also houses the circuit breaker that serves the adjacent carports. The circuit is undersized for the current load.	Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. A new 20A circuit needs to be added per carport.	\$1,500/Circuit
	SCE Transformers	SCE transformer is a newer style and in good condition.	N/A	N/A
Laundry 142	LWV Switchgear	The existing laundry panels were the original 150A panels with the original breakers. The panels are adequate for the current load but will need to be upgraded to accommodate any additional load.	Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuits need to be added.	\$1,500/Circuit \$4,000/Panel

Location	Equipment	Overall Existing Condition ⁴⁵	Immediate Recommendations	Budget Cost ⁶
		The laundry room also houses the circuit breaker that serves the adjacent carports. The circuit is undersized for the current load.	Upgrade panel to accommodate new circuits.	
Laundry 226	SCE Transformers	SCE transformer is a newer style and in good condition.	N/A	N/A
Laundry 226 (Contd.)	LWV Switchgear	The existing laundry panels were the original 150A panels with the original breakers. The panels are adequate for the current load but will need to be upgraded to accommodate any additional load. The laundry room also houses the circuit breaker that serves the adjacent carports. The circuit is undersized for the current load.	Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuit needs to be added to each carport Upgrade panel to accommodate new circuits.	\$1,500/Circuit \$4,000/Panel

Table 1: Summary of Assessment Findings and Results

3 Introduction and Methodology

3.1 Introduction

As part of Task 1, the project team was tasked with performing an assessment of the current electrical infrastructure throughout the Laguna Woods Village (LWV) community for the Third Laguna Hills Mutual, United Laguna Hills Mutual, and the Golden Rain Foundation (GRF). This report summarizes the results of the assessment for United Laguna Hills Mutual facilities. These components include a review of representative typical facilities for the Mutual and a condition assessment for the electrical infrastructure. The findings and recommended upgrades are then extrapolated to include all facilities in the entire Mutual.

The condition assessment contains detailed information associated with the electrical infrastructure components, including the overall condition of the equipment, code compliance issues, and recommended immediate and/or long-term action items. Review of the components are in Section 3 below. Detailed observations focused on items with deficiencies that require repairs.

3.2 Assessment Methodology

The team's approach to complete this task included: **Data Gathering**⁷:

- Establishing the existing demand and infrastructure baseline based on a review of Southern California Edison (SCE) utility data.
 - Meter level billing data for United's SCE assets was obtained from SCE with transformer information only for those assets. SCE did not provide all requested transformer load details as residential load information was deemed confidential. Reference Appendix E for more details on the challenges experienced with SCE.
 - Interviewing staff to develop an understanding of previous, current, and planned infrastructures.
 - Collecting and reviewing information and reports from previous energy studies and completed projects. While the JCI and IDS reports were not written for United Mutual, they were reviewed for applicability.
- ❖ **Site Visits:** TRC engineers and TEC staff performed field visits to evaluate approximately eight typical sites representative of similar sites in the community. The scope of the inspection included evaluating the condition of the existing electrical infrastructure and the feasibility of adding EV charging stations to carports and their impact on the existing infrastructure. The team noted any current deficiencies at each location. See Section 3 for details.
 - ❖ **Assessment Report:** Develop a report with findings from infrastructure assessment. Inventory of equipment is listed in Appendix D.



Figure 3: Electrical Infrastructure Assessment Methodology

⁷ TRC and TEC worked to collect community-wide transformer data from SCE in order to provide a holistic assessment of total load capacity at the transformer level, but after lengthy discussions with SCE, it was determined that this information could not be shared due to confidentiality issues. The process to work with SCE to obtain data added an unforeseen amount of resources and time to the project.

- ❖ **Next Steps:** Based on the assessment of the community's sampled electrical infrastructure, the team will develop a community-wide strategy for potential upgrades needed to serve current, 5- and 10-year load requirements and the corresponding electrical infrastructure to meet those demands.

3.3 Sampling Plan

Due to the size of the community and similarities across infrastructure, a representative sample of sites throughout the community was selected for evaluation.

3.3.1 Corporation Boundaries

The Laguna Woods electrical services are divided between the three corporations: Golden Rain Foundation (clubhouses and common areas), United Laguna Hills Mutual (residential and laundry areas) and Third Laguna Hills Mutual (residential and laundry areas).

United Laguna Hills Mutual is a non-profit mutual benefit housing corporation that manages, operates and maintains all common area property. The common area consists of building exteriors, carports, and laundry facilities within the Mutual's boundaries.

The boundaries of services for the corporations are provided in Appendix A.

3.3.2 Sampled Areas

The sites inspected were chosen based on representative examples of the different types and age of structures throughout each of the communities. The sample included sites with known electrical problems, such as the carport areas, as indicated by the LWV Energy Task Force. Problems include frequent breaker trips and SCE transformer outages. The laundry sites and carports are all very similar electrically throughout the United Mutual community and are all typically served by a 125A or 150A electric panel.

Emphasis was also placed on facilities that would potentially experience upgrades to add EV charging facilities, such as laundry areas, and carports. The following sites were selected for evaluation and are indicated in Appendix A.

- Common Laundry Areas (L23, L31, L142, L226, L89, and L90)
- Residential Carports in (C represents cul-de-sac numbers: C11, C24, C30, C32, C36, C38, C39, C46, C54, and C58)

A preliminary site visit was conducted by the project team on the 7th of November 2018 to become familiar with the site and equipment. The sampled areas were inspected by the project team on the 19th and 20th of December 2018 with a follow-up visit conducted on the 28th of January 2019 and the 20th of June 2019.

3.4 Asset Condition Rating

All electrical equipment has a useful lifespan that is determined by the installation environment, equipment material types (steel, copper, porcelain, etc.), operating history, and obsolescence. Equipment that is installed in hot, humid, dusty or corrosive environments can have a significantly decreased lifespan depending on the severity. Also, equipment that is operated beyond or outside of its intended design limits can shorten its life. For example, a circuit breaker that is continuously overloaded will operate more times than designed and fail sooner than a properly-sized breaker. The requirement to upgrade equipment to add electrical load can cause obsolescence. The original equipment components (breakers, conductors, etc.) may no longer be available or inadequate to serve the most recent electrical load, resulting in the need to be replaced with new equipment. These factors are considered in evaluating all electrical equipment.

TRC rated the condition of the electrical equipment based on the asset condition measurement, as shown in **Table 2** below. These evaluation criteria were used to rate the electrical equipment at each of the locations that were fielded. The ratings are provided for the electrical equipment in general with individual ratings for equipment that warrants more in-depth examination.

Based on conversations with maintenance staff, there is a preventative maintenance plan (PMP) in place, but it needs to be refined to be fully comprehensive for all equipment. This plan is in development for all electrical facilities throughout the community. In many cases, the equipment has been scored as a “3” to designate that more frequent corrective maintenance should be conducted. The exceptions are the areas that clearly show maintenance issues.

Finally, it has been verified that SCE performs an inspection of all of their pad-mounted equipment every five years. No action is needed on behalf of the LWV to initiate this inspection. However, it is recommended that if SCE equipment is found to be damaged, please reach out to the local SCE Planner to repair.

Asset Rating Score	Asset Age (Percent of Useful Life Remaining)	Asset Condition (Quality, Required Level of Maintenance)	Asset Performance (Reliability, Safety, Meets Industry Standards)	Level of Maintenance (Level of Preventive and Corrective Maintenance)	Asset Condition Rating (Rating Description and Scoring Range)
5	Asset new or nearly new 75% - 100%	Asset new or like new; no visible defects	Asset meets or exceeds all performance and reliability metrics, industry standards	No unfunded or deferred maintenance activities	Excellent 4.8 to 5.0
4	Asset nearing or at its midlife point 50%-75%	Asset showing minimal signs of wear; some slight defects or deterioration	Asset generally meets performance and reliability metrics, industry standards	Corrective maintenance increasing; no skipped preventive or corrective maintenance	Good 4.0 to 4.7
3	Asset has passed its midlife point 25%-50%	Some moderately defective or deteriorated components; expected maintenance needs	Occasional performance and reliability issues; may be substandard in some areas	More frequent corrective maintenance required and some minor component failures	Adequate 3.0 to 3.9
2	Asset nearing or at end of its useful life 0%-25%	Increasing numbers of defects; deteriorating components; growing maintenance needs	Performance and reliability problems becoming more serious; substandard elements	Corrective maintenance activities frequently, including major components needing replacement or rehab	Marginal 2.0 to 2.9
1	Asset passed its useful life	Asset in need of replacement or restoration; may have critically damaged components	Frequent performance and reliability problems; does not meet industry standards	Major component failures	Poor 1.0 to 1.9
0					Non-operable or unsafe 0
Enter Score Here	5	5	5	5	5

Table 2: Electrical Equipment Asset Condition Measurement Evaluation Criteria and Example

4 Electrical Infrastructure Assessment

4.1 Summary

The TRC team completed a walkthrough and visual inspection of the electrical infrastructure for United Laguna Hills Mutual’s standalone laundry sites, carports, and residential areas. The sites visited are included in Appendix A. The intent of the site visit was to gather information on representative building types throughout the community to establish a generalization of facility conditions for most building types. Specifically, there was an emphasis on the common areas of the laundry facilities and carports. Photographs were taken at many of the facilities and are included in this report.

Figure 4 shows an overview of the local electrical infrastructure and the equipment needed to carry grid supplied electricity to the local consumer. This report will focus on the local infrastructure equipment, starting from the transformer to the end use.



Figure 4. Overview of the electrical infrastructure equipment from the grid supplied electricity to local consumption.

No overhead structures were identified during the walkthrough; all electrical equipment was underground. Select residential carports included roof-mounted solar panels and equipment connected in the common laundry areas. Solar photovoltaic information is provided in Appendix C.

The SCE transformers were either single-phase pad-mounted (Figure 5) or sub-surface (Figure 6) and in varying condition depending on replacement dates. Most of the transformers that were found were of newer vintage and in good to excellent condition. The existing panels at the residences were mostly the original installation with an older style. Very few panels were upgraded, except for a directed effort to change out 2,750 Pushmatic panels due to obsolescence by May of 2021.

A transformer inventory including transformer ID, location, and the total load was requested from SCE for the United Laguna Hills Mutual boundary, but confidentiality requirements related to the 15/15 Rule prevented them from providing this information. The 15/15 Rule was adopted by the Commission in the Direct Access Proceeding (Commission Decision 97-10-031) to protect customer confidentiality.⁸ The 15/15 rule requires that any aggregated information provided by SCE must be made up of at least 15 customers and a single customer's load must be less than 15% of an assigned category. If the number of customers in the compiled data is below 15, or if a single customer's load is more than 15% of the total data, categories must be combined before the information is released. Without this information, TRC is unable to verify if the transformers are sized adequately for future load. A meeting with SCE was held on the 19th of June 2019 to discuss this request and SCE agreed to assess the feasibility of any area identified for additional load. While SCE will not provide transformer details, they will assess the capacity of various meters identified as potential electric vehicle charging sites. The details provided by SCE will be applicable to EV charger siting recommendations that will be outlined in Task 2. Additional details regarding the challenges experienced by TEC and TRC to obtain SCE transformer data are outlined in Appendix E.

While SCE would not provide the transformer information requested in order to complete the portfolio wide transformer infrastructure assessment as originally intended, SCE confirmed during the in-person meeting that ***any SCE equipment that serves LWV facilities and is deemed to be undersized by SCE, will be upgraded at SCE's expense.***

The Electrical Infrastructure Capacity Summary is included in Appendix D. The report shows the total electrical facilities served by SCE for the United Mutual community with other supporting data such as energy usage (kWh) and electrical demand (kW and kVA). When available, the SCE transformer info is included and the capacity of the transformer was

⁸ <https://www1.sce.com/NR/sc3/tm2/pdf/CE274.pdf>

determined. The transformer info from SCE was not readily available for the sites, so the unknown transformer sizes were estimated based on fielded transformer sizes.



Figure 5: Pad-Mounted Transformer Servicing a United Laguna Hills Mutual Residential Area



Figure 6: SCE Subsurface Transformer Installation

It was also observed that many of the single-story residences have added air conditioning units, potentially maxing out the main breaker rating of 100A. Based on discussions with LWV staff, additional electrical loads were added within the CA code requirements. Verification of the residential units was not included in this scope of work.

A comprehensive list of the sampled areas and equipment is provided in Appendix B.

4.2 Common Laundry Areas

Laundry Rooms L23 (serving Casitas 20-28), L31 (serving Casitas 29-37), L142 (serving Casitas 137-150), and L226 (serving Casitas 219-232) were initially surveyed. A more detailed survey of L89 and L90 was conducted on the June 20, 2019 site walk.

4.2.1 Laundry Rooms 89 and 90

Laundry Rooms 89 and 90 will be addressed together since they were very similar in all aspects.

4.2.2 Existing Equipment Description Laundry Rooms 89 And 90

Transformers

The SCE transformer (Figure 7) is single-phase 100kVA 120/240V and in excellent condition. It is rated as 5.0 (Excellent) based on the Asset Condition Measurement referenced in Section 3.4. Based on the 17kW (20kVA @ 85% power factor) max demand from SCE metering data, the transformer is sized adequately for the load. There is approximately 400% capacity available on this transformer based on nameplate data. The actual transformer loading analysis is determined by SCE. No action is needed for this equipment.



Figure 7: Pad-Mounted Transformer Servicing Laundry Room 90

Panels

The main panel in the laundry rooms are typically 125A panels. The laundry panel is a subpanel fed by the new panel installed to accommodate the solar installation at L90. The existing laundry panel is the original panel with the original breakers. The existing laundry

room electrical equipment is rated 1.5 (Poor) based on the Asset Condition Measurement referenced in Section 3.4. The load in this laundry room has been reduced due to replacing the water heaters with efficient heat pump water heaters. The new panel that was installed for the solar equipment at L90 was rated in good condition at 4.5 (Good) based on the Asset Condition Measurement referenced in Section 3.4. There are spare positions available on this panel to serve additional load if the load calculations allow, and the SCE transformer can serve the load.

The laundry room also houses the circuit breaker that serves the adjacent carports. The circuit is undersized for the current load, which is evident based on the feedback provided that residents are constantly tripping breakers and the observed golf cart and EV chargers plugged in the carport outlets. The circuits are showing signs of wear and tear due to the multiple circuit trips.

The individual circuits feeding the carport outlets for L89 and L90 are 120V, 20A circuits. An example of the L90 panel is provided in Figure 8. These circuits would serve the entire outlet string for each adjacent carport that has outlets numbering one outlet for every two parking spaces in the carport.

The EV chargers plugged into the carports ranged from Level 1 EV chargers (Figure 14) to standalone golf cart/battery chargers, shown in Figure 9. The Level 1 EV chargers have a minimum of 15A and the golf cart/battery chargers range from 5A to 15A, though the majority of golf cart/battery chargers observed were on the higher amperage range. If two or more of these chargers are plugged into the same outlet circuit in a carport charging two vehicles (cars or golf carts), they will exceed the capabilities of the breaker that serve the outlets and trip until the load is reduced. There have been multiple trips of these breakers at carport locations due to circuit overload. Overloading of these circuits has caused the breaker and conductors to physically degrade and continuation of this will cause eventual failure.

Serving the carports from each individual residence is not feasible for a few reasons. First, the distance from the residential meter panel can be excessive, the capacity to serve is limited based on the 100A services and an unobstructed route for the new circuit would be difficult to obtain. In many cases, the route would need to cross several properties to get from the electric service panel to the carport. The average cost for trenching ranges from \$15-20 per foot. Trenching from carports is easier due to close proximity of the carports to the laundry rooms.

The most logical, short-term solution would be to add additional 20A circuits to each of the carports to accommodate the EV charging demand. This would greatly improve the EV charging capabilities for the residences. However, it would still limit one active unit per circuit at any given time. The long-term solution would require the EV charging plan, which will be addressed as part of phase 2.

Another quick but less scalable solution would be to schedule the charging of all EV charging in each carport. Based on conversations with the staff, this method is already occurring. It involves the carport residence to coordinate with each other so that the circuit overloads are limited. However, with the addition of Level 2 EV chargers this will be more difficult due to the time needed to charge larger EVs.

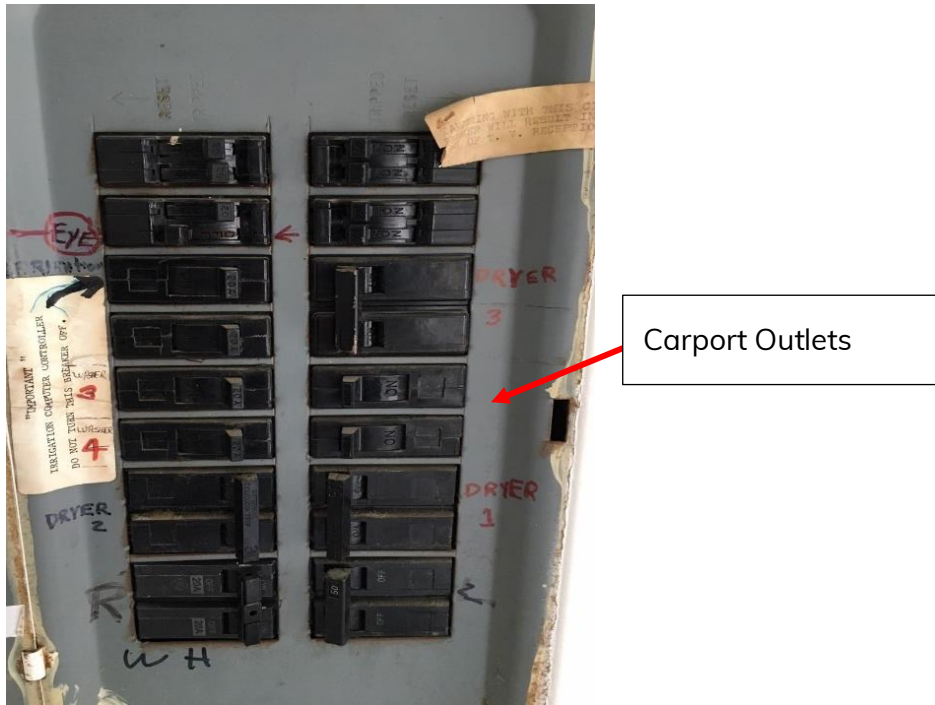


Figure 8: Laundry Room 90 Breaker Panel in United Laguna Hills Mutual Residential Area



Figure 9: Golf Cart Charger Example

Solar Installations

There is a 102.1 kW solar installation at L90. The equipment was installed in 2017 and interconnected to the SCE grid. Refer to Appendix C for solar information. All equipment was in excellent condition.

4.2.3 Code Compliance & Safety

The electrical equipment in Laundry Room 89 and L90 was the original equipment and had noticeable wear and tear due to the multiple circuit trips. In particular, the circuit feeding the carports has experienced overloads due to the EV chargers and other loads plugged in at the carport outlets. This needs to be resolved to prevent future failures and outages.

4.2.4 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
<ul style="list-style-type: none"> Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuits need to be added for each carport to prevent circuit trips. 	\$1,500/Circuit

<ul style="list-style-type: none"> • These circuits, and possibly panels, need to be upgraded to accommodate the golf cart and EV charging in the carports. • Before adding electrical loads, an electrical load calculation analysis needs to be performed to ensure the equipment is capable of the additional load. 	<p>N/A.</p> <p>To be discussed in Task 2</p>
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Long Term

Recommendations	Budget Cost
Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$50/laundry room

4.2.4.1 Connection to Roadmap

Although there is new SCE equipment related to these sites, there are customer-side opportunities to improve the electrical infrastructure. Sizing the circuits and panels to accommodate long term needs of the community will further be evaluated in Task 2. Any load additions will need to be coordinated with SCE to ensure they have the capacity to serve.

4.2.5 Laundry Rooms 23

Laundry Rooms L23 (serving Casitas 20-28), L31 (serving Casitas 29-37), L142 (serving Casitas 137-150) and L226 (serving Casitas 219-232) were initially surveyed. A more detailed survey of L89 and L90 was conducted on the June 20, 2019 site walk.

4.2.5.1 Existing Equipment Description

Transformers

The SCE transformer is an older style of unknown size in adequate condition (Figure 10). The size information was not available in the field. The total load for Laundry 23 is 18kW (21kVA @ 85% power factor) max demand from SCE metering data. Since the size is not known, an analysis of the load-carrying capacity cannot be determined. There is solar present at this site and the solar is interconnected and feeding back to the grid when the solar output exceeds the load demand.



Figure 10: SCE Transformer Servicing Laundry Room 23

Panels

The panel in the laundry room is a 125A subpanel fed by the new panel (Figure 11) installed to accommodate the solar installation. The laundry panel has been changed to a new style and has some physical spaces for additional load if the NEC calculations support it. The load for this laundry room has been reduced due to replacing the water heaters with efficient heat pump water heaters. The panels are adequate for the current load; however, if any additional load is to be added to these panels it is recommended that the panel be upgraded to accommodate the additional load. The new panel that was installed for the solar equipment was rated 4.5 (Good) based on the Asset Condition Measurement referenced in Section 3.4. There are spare positions available on this panel to serve additional load if the load calculations allow, and the SCE transformer can serve the load.

The laundry room also houses the circuit breaker that serves the adjacent carports. The individual circuits feeding the carport outlets are 120V, 20A circuits. These circuits would serve the entire outlet string for each adjacent carport that has outlets numbering anywhere from two to four depending on the number of parking spaces in the carport. The circuit is undersized for the current load, which is evident based on the feedback provided that residents are constantly tripping breakers and the observed golf cart and EV chargers plugged in the carport outlets. The EV chargers plugged into the carports ranged from Level 1 EV chargers (Figure 14) to standalone golf cart/battery chargers shown in Figure 9. The Level 1 EV chargers are a minimum of 15A and the golf cart/battery chargers range from 5A to 15A, with the majority observed to be at the higher range. If two or more of these chargers are plugged into the same outlet circuit in a carport charging two vehicles (cars or golf carts), they will exceed the capabilities of the breaker and conductors that serve the outlets.

Based on these conditions, the existing laundry room electrical equipment was rated at 1.25 (Poor) based on the Asset Condition Measurement referenced in Section 3.4.

A short-term solution to resolve the circuit overloading would be to add an additional 20A circuit or two to each of the carports to accommodate the EV charging demand. Level 1 and golf cart EV charging would need to be limited to one active unit per circuit at any given time.

Solar Installations

There is a 90.7kW solar installation at L23. The equipment was installed in 2017 and interconnected to the SCE grid. Refer to Appendix C for solar information.



Figure 11: Solar Electric Supply Servicing Laundry Room 23

4.2.5.2 Code Compliance & Safety

The panel in Laundry Room 23 is the original equipment and has wear and tear due to the multiple circuit trips. In particular, the circuit feeding the carports has experienced overloads due to the EV chargers and other loads plugged in at the carport outlets. This needs to be resolved to prevent future failure and outages. The new circuit should be fed out of the new panel that was installed for the solar installation.

4.2.5.3 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
<ul style="list-style-type: none"> Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuits need to be added. 	\$1,500/Circuit
<ul style="list-style-type: none"> These circuits, and possibly panels, need to be upgraded to accommodate the golf cart and EV charging in the carports. Before adding electrical loads, an electrical load calculation analysis needs to be performed to ensure the equipment is capable of the additional load. 	N/A To be discussed in Task 2

Long Term

Recommendations	Budget Cost
Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$50/Laundry Room

4.2.5.4 Connection to Roadmap

Since there is a solar PV system present, a potential for EV charging, and unknown details about older style SCE equipment, this or similar locations may benefit from SCE evaluation before further issues arise. The roadmap developed in Task 2 will address this and provide scenarios for the client and SCE to evaluate.

4.2.6 Laundry Room 31

4.2.6.1 Existing Equipment Description Laundry Room 31

Transformers

The SCE transformer (Figure 12) is a newer style 100kVA 120/240 in excellent condition. It is rated as 5.0 (Excellent) based on the Asset Condition Measurement referenced in Section 3.4. Based on the 18kW (21kVA @ 85% power factor) max demand from SCE metering data, the transformer is sized adequately for the load of Clubhouse 1. There is approximately 372% capacity available on this transformer based on nameplate data. The actual transformer

loading analysis is determined by SCE. No action is needed for this equipment. The transformer is oversized to accommodate the solar capacity.



Figure 12: SCE Transformer Servicing Laundry Room 31

Panels

The existing laundry panel is an upgraded sub-panel recently installed with the solar upgrade in excellent condition (Figure 13). The load in this laundry room has been reduced due to replacing the water heaters with efficient heat pump water heaters and reduced in size.

The laundry room also houses the circuit breaker that serves the adjacent carports. The individual circuits feeding the carport outlets are 120V, 20A circuits. These circuits would serve the entire outlet string for each adjacent carport that has outlets numbering anywhere from two to four depending on the number of parking spaces in the carport. The circuit is undersized for the current load, which is evident based on the feedback provided that residents are constantly tripping breakers and the observed golf cart and EV chargers plugged in the carport outlets. The EV chargers plugged into the carports ranged from Level 1 EV chargers (Figure 14) to standalone golf cart/battery chargers (Figure 9). The Level 1 EV chargers are a minimum of 15A and the golf cart/battery chargers range from 5A to 15A, with the majority observed to be at the higher range. If two or more of these chargers are plugged into the same outlet circuit in a carport charging two vehicles (cars or golf carts), they will exceed the capabilities of the breaker and conductors that serve the outlets.

Based on these conditions, the existing laundry room electrical equipment was rated at 5.0 (Excellent) using the on the Asset Condition Measurement referenced in Section 3.4.

A short-term solution to resolve the circuit overloading would be to add additional 20A circuits to each of the carports to accommodate the EV charging demand. Level 1 and golf cart EV charging would need to be limited to one active unit per circuit at any given time.



Figure 13: New Subpanel Servicing Laundry Room 31

Solar Installations

There is no solar equipment at L31.

4.2.6.2 Code Compliance & Safety

The circuit feeding the carports has experienced overloads due to the EV chargers and other load plugged in at the carport outlets. In this carport, there was a Level 1 EV charger plugged into one of the outlets of the adjacent carport (Figure 14) that, on its own, would fully utilize the carport circuit capacity. This needs to be resolved to prevent failure and outages.



Figure 14: Level 1 EV Charger in United Laguna Hills Mutual Residential Area

4.2.6.3 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
<ul style="list-style-type: none"> Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuits need to be added. 	\$1,500/Circuit
<ul style="list-style-type: none"> These circuits, and possibly panels, need to be upgraded to accommodate the golf cart and EV charging in the carports. Before adding electrical loads, an electrical load calculation analysis needs to be performed to ensure the equipment is capable of the additional load. 	<p>N/A</p> <p>To be discussed in Task 2</p>

Long Term

Recommendations	Budget Cost
Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$50/Laundry Room

4.2.6.4 Connection to Roadmap

The new 20A circuits are a short term solution. However, if any significant load is added to this location, then upgrading the panel to accommodate Level 2 charging, as well as any other energy generation/storage or consumption on the circuit should be considered.

4.2.7 Laundry Rooms 142 and 226

4.2.7.1 Existing Equipment Description

Laundry room 142 and 226 will be addressed together since they were very similar in all aspects.

Transformers

In both cases, the SCE transformer is a newer style 75kVA 120/240 in good condition (Figure 15). It is rated as 4.0 (Good) based on the Asset Condition Measurement referenced in Section 3.4. Based on the 15kW (18kVA @ 85% power factor) max demand from SCE metering data, the transformer is sized adequately for the load of Clubhouse 1. There is approximately 325% capacity available on this transformer based on nameplate data. Actual transformer loading analysis is determined by SCE. No action is needed for this equipment.



Figure 15: SCE Transformer at L142

Panels

The existing laundry panels are the original 150A panels with the original breakers (Figure 16). The load in this laundry room has been reduced due to replacing the water heaters with efficient heat pump water heaters. The panels are adequate for the current load.

The laundry room also houses the circuit breaker that serves the adjacent carports. The individual circuits feeding the carport outlets are 120V, 20A circuits. These circuits serve the entire outlet string for each adjacent carport that has outlets, numbering anywhere from two to four depending on the number of parking spaces in the carport. The circuit is undersized for the current load, which is evident based on the feedback provided that residents are constantly tripping breakers and the observed golf cart and EV chargers plugged in the carport outlets. The EV chargers plugged into the carports ranged from Level 1 EV chargers (Figure 14) to standalone golf cart/battery chargers (Figure 9). The Level 1 EV chargers are a minimum of 15A and the golf cart/battery chargers range from 5A to 15A, with the majority observed to be at the higher range. If two or more of these chargers are plugged into the same outlet circuit in a carport charging two vehicles (cars or golf carts), they will exceed the capabilities of the breaker and conductors that serve the outlets.

Based on these conditions, the existing laundry room electrical equipment was rated 1.25 (Poor) based on the Asset Condition Measurement referenced in Section 3.4.

A short-term solution to resolve the circuit overloading would be to add an additional 20A circuit or two to each of the carports to accommodate the EV charging demand. Level 1 and golf cart EV charging would need to be limited to one active unit per circuit at any given time.



Figure 16: Laundry Room 226 Main Breaker Panel in Laguna Hills Mutual Residential Area

Solar Installations

There are no solar installations at L142 and L226.

4.2.7.2 Code Compliance & Safety

The electrical equipment in both Laundry Rooms are original equipment and have some wear and tear due to the multiple circuit trips. In particular, the circuit feeding the carports has experienced overloads due to the EV chargers and other loads plugged in at the carport outlets. This needs to be resolved to prevent failure and outages.

4.2.7.3 Recommendations

Immediate Repairs and Short Term

Recommendations	Budget Cost
<ul style="list-style-type: none">Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuits need to be added.Upgrade panel to accommodate new circuits.	\$1,500/Circuit \$4,000/Panel
<ul style="list-style-type: none">These circuits, and possibly panels, need to be upgraded to accommodate the golf cart and EV charging in the carports.Before adding electrical loads, an electrical load calculation analysis needs to be performed to ensure the equipment is capable of the additional load.	NA To be discussed in Task 2

Long Term

Recommendations	Budget Cost
Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$50/Laundry Room

4.2.7.4 Connection to Roadmap

The laundry rooms present an opportunity to potentially locate EV charging stations and offset the additional load with solar panels. This also can be an opportunity to further offset electric load from washers, dryers, and water heating equipment if applicable. Forecasting these electrification opportunities would be a factor in determining if a transformer or related infrastructure would need short, medium, or long term action by the client, or by SCE.

5 Summary and Next Steps

The TRC team completed a walkthrough and visual inspection of a representative sample of the electrical infrastructure for United Laguna Hills Mutual's standalone laundry sites, carports, and residential areas. The assessments conducted at the specific locations in this report were extrapolated to the existing electrical infrastructure for United Laguna Hills Mutual's facilities. Below is a summary of the site observations:

- The SCE transformers were either single-phase pad-mounted or subsurface and in varying condition depending on replacement dates. Most of the transformers that were found were of newer vintage and in good to excellent condition.
- The majority of the electrical equipment is original to the facility and has not been upgraded, with the exception of the sites that have added solar. United Laguna Hills Mutual completed a large scale project that included replacing electric panels and replacing water heaters with smaller, more efficient water heaters to reduce the loads but did not upgrade panels in the process.
- The existing panels at the residences were mostly the original installation and an older style with very few upgraded except for a directed effort to change out 2,750 Pushmatic panels due to obsolescence by May of 2021.

The number of electrical problems are increasing due to the limited addition of electric vehicles over the years, causing circuit overloads and breaker trips in the carports. The most apparent solution to this problem is to add charging capacity to the carports to accommodate existing and future EV charging demands. However, as there are over 1,200 carports throughout the community between the two Mutuals that could potentially receive additional charging capabilities by adding either new 120V outlets or new dedicated EV charging stations. Addressing all of them would be an extensive project, as detailed in Section 4.2 for each site.

In the short term, it would be prudent to resolve part of the electrical overload problems by addressing the areas that are experiencing significant issues. The issues in these areas can be resolved with additional outlets or standalone charging stations. These areas are known and could be addressed while developing an overall, long term plan.

Immediate actions consist of installing new panels at the laundry rooms (\$4k per laundry room) and new circuits for carports (\$1.5k per carport). Within United Mutual's facilities, there are a total of 163 laundry rooms and 805 carports. Assuming that similar facilities across the community require the same upgrades as those listed in Table 1, the total *estimated* costs for upgrades to the electrical infrastructure across United facilities is **\$1,860,000-2,050,000⁹**, as shown in Figure 2. For long term activities, routine inspections of the laundry room electrical

⁹ The range is based on a 10% contingency added to the total estimated costs.

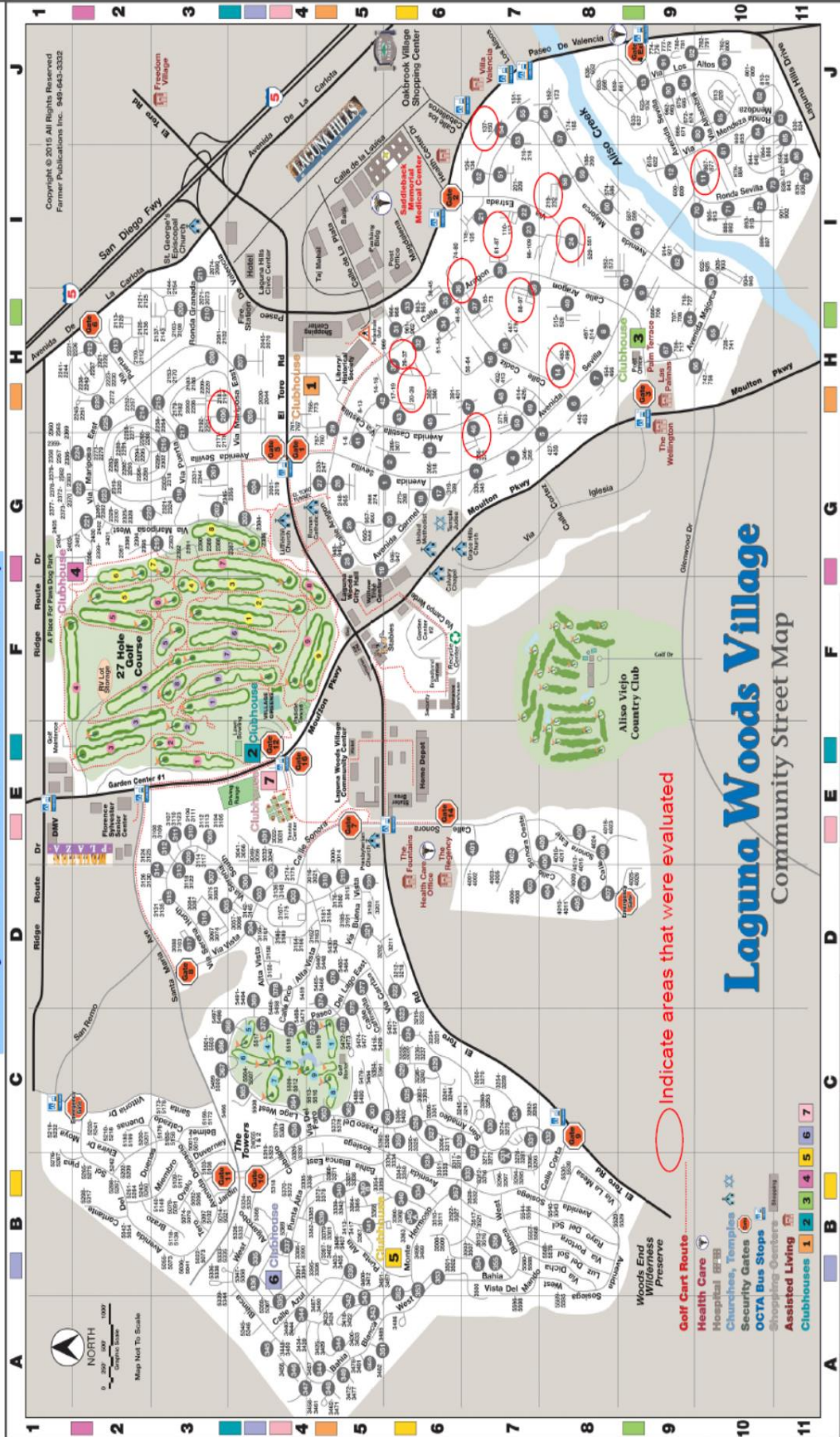
equipment is recommended. These inspections are estimated to cost \$50 per laundry room inspection.



This information will also serve as the basis of further analysis to create a comprehensive strategic roadmap that provides recommendations on a range of strategies to satisfy the future energy needs of the community. A number of factors will influence the final plan. Some of these factors include the forecasted electric vehicle penetration in the community, forecasted residential unit energy load growth, and any desired back-up power, energy storage or resilience strategies determined necessary by the client.

Appendix A – Inspected Area

Facility Assessment Site Visit Map



Appendix B – Electrical Infrastructure Condition Summary

Location	Equipment	Asset Condition	Asset Performance	Level of Maintenance	Asset Condition Rating	Action Items	Photo Reference
Laundry Room 89	SCE Transformers	5	5	5	Excellent (5.0)	Scheduled Inspection	Figure 7
Laundry Room 89	LWV Switchgear	2	2	2	Poor (2.0)	Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuits need to be added.	Figure 8
Laundry Room 90	SCE Transformers	5	5	5	Excellent (5.0)	Scheduled Inspection	Figure 7
Laundry Room 90	LWV Switchgear	2	2	2	Poor (2.0)	Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuits need to be added.	Figure 8
Laundry Room 90	Solar Panel	5	5	5	Excellent (5.0)	N/A	N/A

Location	Equipment	Asset Condition	Asset Performance	Level of Maintenance	Asset Condition Rating	Action Items	Photo Reference
Laundry Room 23	SCE Transformers	3	3	3	Adequate (3.0)	Scheduled Inspection	Figure 10
Laundry Room 23	LWV Switchgear	2	2	2	Poor (2.0)	Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuits need to be added.	Figure 11
Laundry Room 23	Solar Panel	5	5	5	Excellent (5.0)	N/A	Figure 10
Laundry Room 31	SCE Transformers	5	5	5	Excellent (5.0)	Scheduled Inspection	Figure 12
Laundry Room 31	LWV Switchgear	5	5	5	Excellent (5.0)	Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuits need to be added.	Figure 13
Laundry Room 142	SCE Transformers	5	5	5	Excellent (5.0)	Scheduled Inspection	Figure 15

Location	Equipment	Asset Condition	Asset Performance	Level of Maintenance	Asset Condition Rating	Action Items	Photo Reference
Laundry Room 142	LWV Switchgear	5	5	5	Excellent (5.0)	Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuits need to be added.	Figure 16
Laundry Room 226	SCE Transformers	3	3	3	Good (3.0)	Scheduled Inspection	Figure 15
Laundry Room 226	LWV Switchgear	2	2	2	Poor (2.0)	Immediate repairs need to occur on the carport circuits that are fed from the laundry room panels. New 20A circuits need to be added. Upgrade panel to accommodate new circuits.	Figure 16

Appendix C – Solar Photovoltaic Information

The information provided in the table below was referenced from the JCI's Year 1 Measurement & Verification Report.

Site/Location	Solar Photovoltaic DC Capacity
Carport Area with Laundry Buildings L23 and L24	90.7 kW + 90.7 kW
Carport Area with Laundry Building L50 and L52	105.8 kW + 94.5 kW
Carport Area with Laundry Building L88	105.8 kW
Carport Area with Laundry Building L90	102.1 kW
Carport Area with Laundry Buildings L91 and L92	102.1 kW + 105.8 KW

Appendix D – United Laguna Hills Mutual Electrical Infrastructure Capacity Report

Sites that were visited are highlighted in grey

UNITED LAGUNA HILLS MUTUAL - 18833

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWh	Annual Revenue	SCE Transformer Size (Est.)	SCE Transformer Capacity
1197282	222013-116730	396878209	TOU-GS1A	216 Laundry Mutual 20	Laguna Woods	18	21	17,835	\$1,286	75	254%
3503136	222013-992844	396878209	TOU-GS1A	85 Laundry Mutual 8	Laguna Woods	16	19	17,421	\$1,194	75	298%
1197228	222013-741822	396878209	TOU-GS1A	8 Laundry Mutual 1	Laguna Woods	18	21	15,519	\$1,425	75	254%
1197273	222013-116729	396878209	TOU-GS1A	209 Laundry Mutual 19	Laguna Woods	18	21	15,188	\$1,103	75	254%
1197285	222013-820767	396878209	TOU-GS1A	225 Laundry Mutual 21	Laguna Woods	19	22	14,566	\$1,126	75	236%
1197237	222013-115244	396878209	TOU-GS1A	119 Laundry Mutual 11	Laguna Woods	20	24	14,308	\$1,360	75	219%
1197251	222013-141524	396878209	TOU-GS1A	107 Laundry Mutual 14	Laguna Woods	17	20	14,193	\$792	75	275%
3503147	222013-760926	396878209	TOU-GS1A	115 Laundry Mutual 11	Laguna Woods	19	22	14,119	\$1,263	75	236%
1197233	222013-116681	396878209	TOU-GS1A	124 Laundry Mutual 10	Laguna Woods	16	19	13,974	\$1,340	75	298%
1197305	222013-760085	396878209	TOU-GS1A	7 Mutual 72	Laguna Woods	17	20	13,694	\$1,072	75	275%
1197309	222013-910079	396878209	TOU-GS1A	82 Laundry Mutual 8	Laguna Woods	19	22	13,275	\$1,039	75	236%
1197284	222011-977659	396878209	TOU-GS1A	223 Laundry Mutual 21	Laguna Woods	18	21	13,272	\$1,046	75	254%
3501674	222013-116258	396878209	TOU-GS1A	207 Laundry Mutual 19	Laguna Woods	19	22	13,116	\$1,032	75	236%
1197242	222013-760924	396878209	TOU-GS1A	111 Laundry Mutual 12	Laguna Woods	16	19	13,074	\$807	75	298%
1197252	222013-141599	396878209	TOU-GS1A	1 Laundry Mutual 14	Laguna Woods	19	22	13,048	\$1,258	75	236%
1197244	222013-115269	396878209	TOU-GS1A	130 Laundry Mutual 13	Laguna Woods	19	22	12,887	\$1,253	75	236%
1197280	222013-116266	396878209	TOU-GS1A	212 Laundry Mutual 20	Laguna Woods	18	21	12,587	\$1,028	75	254%
1197256	222013-116318	396878209	TOU-GS1A	139 Laundry Mutual 15	Laguna Woods	18	21	12,556	\$1,171	75	254%
3605614	222013-111830	396878209	TOU-GS1A	19 Laundry Mutual 2	Laguna Woods	17	20	12,459	\$1,205	75	275%
1197271	222013-741844	396878209	TOU-GS1A	206 Laundry Mutual 19	Laguna Woods	15	18	12,400	\$985	75	325%
3501669	222013-741846	396878209	TOU-GS1A	9 Laundry Mutual 1	Laguna Woods	17	20	12,394	\$1,205	75	275%
1197235	222013-115294	396878209	TOU-GS1A	117 Laundry Mutual 11	Laguna Woods	18	21	12,369	\$1,232	75	254%
1197298	222013-113409	396878209	TOU-GS1A	63 Laundry Mutual 6	Laguna Woods	18	21	12,347	\$851	75	254%
1197308	222013-148006	396878209	TOU-GS1A	81 Laundry Mutual 8	Laguna Woods	14	16	12,343	\$1,028	75	355%
1197295	222013-684752	396878209	TOU-GS1B	58 Laundry Mutual 5	Laguna Woods	20	24	12,305	\$3,270	75	219%
1197229	222013-741820	396878209	TOU-GS1A	6 Laundry Mutual 1	Laguna Woods	14	16	12,252	\$1,203	75	355%
1197262	222013-141577	396878209	TOU-GS1A	147 Laundry Mutual 16	Laguna Woods	17	20	12,049	\$490	75	275%
3605611	222013-115219	396878209	TOU-GS1A	12 Laundry Mutual 2	Laguna Woods	18	21	12,014	\$1,203	75	254%
1197267	222013-682031	396878209	TOU-GS1A	156 Laundry Mutual 17	Laguna Woods	17	20	11,865	\$476	75	275%
1197292	222013-737698	396878209	TOU-GS1A	44 Laundry Mutual 3	Laguna Woods	17	20	11,843	\$795	75	275%
1197270	222013-116283	396878209	TOU-GS1A	203 Laundry Mutual 19	Laguna Woods	18	21	11,779	\$963	75	254%
1197289	222013-737730	396878209	TOU-GS1A	35 Laundry Mutual 3	Laguna Woods	19	22	11,746	\$961	75	236%
1197275	222013-111781	396878209	TOU-GS1A	14 Laundry Mutual 2	Laguna Woods	17	20	11,661	\$1,147	75	275%
1197287	222013-743124	396878209	TOU-GS1A	32 Laundry Mutual 3	Laguna Woods	17	20	11,566	\$927	75	275%
1197264	222013-821705	396878209	TOU-GS1A	154 Laundry Mutual 16	Laguna Woods	17	20	11,498	\$916	75	275%
3605610	222013-115216	396878209	TOU-GS1A	13 Laundry Mutual 2	Laguna Woods	18	21	11,484	\$1,166	75	254%
1197254	222013-115246	396878209	TOU-GS1A	136 Laundry Mutual 15	Laguna Woods	16	19	11,408	\$1,124	75	298%
1197261	222013-141576	396878209	TOU-GS1A	146 Laundry Mutual 16	Laguna Woods	16	19	11,158	\$479	75	298%
1197240	222013-141552	396878209	TOU-GS1A	100 Laundry Mutual 12	Laguna Woods	18	21	11,116	\$720	75	254%
1197272	222013-116257	396878209	TOU-GS1A	208 Laundry Mutual 19	Laguna Woods	14	16	11,114	\$915	75	355%
1197291	222013-141573	396878209	TOU-GS1A	41 Laundry Mutual 3	Laguna Woods	17	20	11,082	\$899	75	275%
1197231	222013-115218	396878209	TOU-GS1A	4 Laundry Mutual 1	Laguna Woods	15	18	11,046	\$1,135	75	325%
1197263	222014-031145	396878209	TOU-GS1A	153 Laundry Mutual 16	Laguna Woods	16	19	10,960	\$500	75	298%
1197290	222013-141572	396878209	TOU-GS1A	39 Laundry Mutual 3	Laguna Woods	19	22	10,946	\$897	75	236%
1197283	222013-116731	396878209	TOU-GS1A	218 Laundry Mutual 20	Laguna Woods	16	19	10,920	\$912	75	298%
1197286	222013-741845	396878209	TOU-GS1A	226 Laundry Mutual 21	Laguna Woods	15	18	10,779	\$937	75	325%
3432950	222013-684773	396878209	TOU-GS1A	67 Laundry Mutual 7	Laguna Woods	17	20	10,707	\$871	75	275%

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWh	Annual Revenue	SCE Transformer Size (Est.)	SCE Transformer Capacity
3501671	222013-116256	396878209	TOU-GS1A	204 Laundry Mutual 19	Laguna Woods	17	20	10,701	\$893	75	275%
1197258	222013-141529	396878209	TOU-GS1A	144 Laundry Mutual 15	Laguna Woods	17	20	10,686	\$468	75	275%
3501797	222013-757918	396878209	TOU-GS1A	38 Laundry Mutual 3	Laguna Woods	19	22	10,625	\$901	75	236%
1197288	222013-141508	396878209	TOU-GS1A	33 Laundry Mutual 3	Laguna Woods	19	22	10,618	\$870	75	236%
3503140	222013-116680	396878209	TOU-GS1A	125 Laundry Mutual 10	Laguna Woods	16	19	10,581	\$1,095	75	298%
1197293	222013-743622	396878209	TOU-GS1A	48 Laundry Mutual 4	Laguna Woods	18	21	10,561	\$751	75	254%
1197300	222013-113408	396878209	TOU-GS1A	Avenida Sevilla Mut6	Laguna Woods	18	21	10,517	\$894	75	254%
3501798	222013-737731	396878209	TOU-GS1A	40 Laundry Mutual 3	Laguna Woods	18	21	10,415	\$864	75	254%
1197234	222013-760179	396878209	TOU-GS1A	114 Laundry Mutual 11	Laguna Woods	19	22	10,365	\$1,066	75	236%
1197241	222013-141531	396878209	TOU-GS1A	110 Laundry Mutual 12	Laguna Woods	17	20	10,316	\$670	75	275%
3433305	222013-821718	396878209	TOU-GS1A	151 Laundry Mutual 16	Laguna Woods	18	21	10,288	\$471	75	254%
3431342	222013-743620	396878209	TOU-GS1A	54 Laundry Mutual 4	Laguna Woods	17	20	10,217	\$782	75	275%
1197250	222013-141526	396878209	TOU-GS1A	104 Laundry Mutual 14	Laguna Woods	15	18	10,171	\$694	75	325%
1197269	222013-114843	396878209	TOU-GS1A	2013 Via Mariposa W	Laguna Woods	16	19	10,133	\$861	75	298%
3606237	222013-115268	396878209	TOU-GS1A	112 Laundry Mutual 12	Laguna Woods	18	21	10,104	\$1,055	75	254%
3431344	222013-759175	396878209	TOU-GS1A	56 Laundry Mutual 4	Laguna Woods	17	20	10,101	\$754	75	275%
1197232	222013-116682	396878209	TOU-GS1A	23 Laundry Mutual 10	Laguna Woods	18	21	10,077	\$1,041	75	254%
1197297	222013-759173	396878209	TOU-GS1A	61 Laundry Mutual 5	Laguna Woods	19	22	10,006	\$749	75	236%
3503135	222013-141745	396878209	TOU-GS1A	78 Laundry Mutual 8	Laguna Woods	15	18	9,784	\$844	75	325%
1197260	222013-141578	396878209	TOU-GS1A	148 Laundry Mutual 16	Laguna Woods	18	21	9,720	\$463	75	254%
1197279	222013-141509	396878209	TOU-GS1A	30 Laundry Mutual 2	Laguna Hills	16	19	9,720	\$862	75	298%
1197315	223000-006069	396287625	TOU-GS1A	88 Laundry Mutual 9	Laguna Woods	17	20	9,712	\$629	75	275%
3605616	222013-115243	396878209	TOU-GS1A	22 Laundry Mutual 2	Laguna Woods	20	24	9,681	\$1,000	75	219%
3501676	222013-820766	396878209	TOU-GS1A	219 Laundry Mutual 21	Laguna Woods	19	22	9,653	\$838	75	236%
1197246	222013-141597	396878209	TOU-GS1A	132 Laundry Mutual 13	Laguna Woods	17	20	9,565	\$1,007	75	275%
1197243	222013-760199	396878209	TOU-GS1A	129 Laundry Mutual 13	Laguna Woods	18	21	9,550	\$991	75	254%
3501795	222013-757917	396878209	TOU-GS1A	36 Laundry Mutual 3	Laguna Woods	19	22	9,515	\$813	75	236%
1197227	222013-738184	396878209	TOU-GS1A	11 Laundry Mutual 1	Laguna Woods	19	22	9,485	\$1,045	75	236%
3432947	222013-113411	396878209	TOU-GS1A	Avenida Sevilla Mut6	Laguna Woods	20	24	9,360	\$828	75	219%
3433301	222013-740992	396878209	TOU-GS1A	140 Laundry Mutual 15	Laguna Woods	15	18	9,270	\$998	75	325%
3606239	222013-760198	396878209	TOU-GS1A	128 Laundry Mutual 13	Laguna Woods	15	18	9,222	\$982	75	325%
3433306	222013-821717	396878209	TOU-GS1A	152 Laundry Mutual 16	Laguna Woods	17	20	9,144	\$427	75	275%
1197299	222013-910078	396878209	TOU-GS1A	64 Laundry Mutual 6	Laguna Woods	19	22	9,104	\$694	75	236%
3501667	222013-738186	396878209	TOU-GS1A	10 Laundry Mutual 1	Laguna Woods	18	21	9,063	\$983	75	254%
1197236	222013-736067	396878209	TOU-GS1A	116 Laundry Mutual 11	Laguna Woods	15	18	9,055	\$971	75	325%
1197276	222013-148007	396878209	TOU-GS1A	15 Laundry Mutual 2	Laguna Woods	19	22	9,026	\$989	75	236%
1197304	222013-737566	396878209	TOU-GS1A	7 Mutual 72	Laguna Woods	16	19	9,024	\$797	75	298%
3605618	222013-115241	396878209	TOU-GS1A	20 Laundry Mutual 2	Laguna Woods	17	20	9,009	\$985	75	275%
3503150	222013-115247	396878209	TOU-GS1A	121 Laundry Mutual 11	Laguna Woods	18	21	8,968	\$965	75	254%
1197259	222013-145103	396878209	TOU-GS1A	149 Laundry Mutual 16	Laguna Woods	16	19	8,934	\$437	75	298%
1197253	222013-115222	396878209	TOU-GS1A	135 Laundry Mutual 15	Laguna Woods	17	20	8,912	\$953	75	275%
3605622	222013-111831	396878209	TOU-GS1A	28 Laundry Mutual 2	Laguna Woods	18	21	8,883	\$796	75	254%
3605620	222013-115289	396878209	TOU-GS1A	26 Laundry Mutual 2	Laguna Woods	19	22	8,877	\$786	75	236%
3501796	222013-141574	396878209	TOU-GS1A	37 Laundry Mutual 3	Laguna Woods	18	21	8,867	\$783	75	254%
1197274	222013-116728	396878209	TOU-GS1A	211 Laundry Mutual 19	Laguna Woods	16	19	8,849	\$804	75	298%
3503148	222013-760925	396878209	TOU-GS1A	118 Laundry Mutual 11	Laguna Woods	18	21	8,811	\$978	75	254%
3606240	222013-760174	396878209	TOU-GS1A	134 Laundry Mutual 13	Laguna Woods	17	20	8,767	\$950	75	275%
3606243	222013-141534	396878209	TOU-GS1A	106 Laundry Mutual 14	Laguna Woods	16	19	8,736	\$588	75	298%
1197294	222013-684772	396878209	TOU-GS1A	57 Laundry Mutual 5	Laguna Woods	18	21	8,720	\$669	75	254%

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWh	Annual Revenue	SCE Transformer Size (Est.)	SCE Transformer Capacity
1197301	222013-737519	396878209	TOU-GS1A	65 Laundry Mutual 7	Laguna Woods	18	21	8,709	\$679	75	254%
1197281	222013-116267	396878209	TOU-GS1A	217 Laundry Mutual 20	Laguna Woods	16	19	8,708	\$795	75	298%
1197311	222013-115270	396878209	TOU-GS1A	79 Laundry Mutual B	Laguna Woods	16	19	8,631	\$843	75	298%
1197238	222013-736132	396878209	TOU-GS1A	122 Laundry Mutual 11	Laguna Woods	18	21	8,586	\$924	75	254%
1197226	222013-115266	396878209	TOU-GS1A	1 Laundry Mutual 1	Laguna Woods	18	21	8,540	\$943	75	254%
3432949	222013-684774	396878209	TOU-GS1A	66 Laundry Mutual 7	Laguna Woods	16	19	8,499	\$651	75	298%
3501803	222013-737699	396878209	TOU-GS1A	43 Laundry Mutual 3	Laguna Woods	18	21	8,422	\$705	75	254%
3501675	222013-738234	396878209	TOU-GS1A	210 Laundry Mutual 19	Laguna Woods	15	18	8,412	\$782	75	325%
3605613	222013-115240	396878209	TOU-GS1A	16 Laundry Mutual 2	Laguna Woods	14	16	8,397	\$952	75	355%
3501673	222013-116259	396878209	TOU-GS1A	205 Laundry Mutual 19	Laguna Woods	17	20	8,391	\$771	75	275%
1197296	222013-684754	396878209	TOU-GS1A	59 Laundry Mutual 5	Laguna Woods	17	20	8,380	\$665	75	275%
3431341	222013-759174	396878209	TOU-GS1A	53 Laundry Mutual 4	Laguna Woods	17	20	8,330	\$670	75	275%
3433302	222013-760559	396878209	TOU-GS1A	141 Laundry Mutual 15	Laguna Woods	16	19	8,322	\$1,525	75	298%
1197307	222013-760087	396878209	TOU-GS1A	69 Laundry Mutual 7	Laguna Woods	17	20	8,311	\$608	75	275%
1197268	222013-116319	396878209	TOU-GS1A	201 Laundry Mutual 19	Laguna Woods	13	15	8,301	\$429	75	390%
3606241	222013-141533	396878209	TOU-GS1A	102 Laundry Mutual 14	Laguna Woods	17	20	8,285	\$625	75	275%
3606244	222013-141527	396878209	TOU-GS1A	108 Laundry Mutual 14	Laguna Woods	14	16	8,273	\$603	75	355%
1197310	222013-141744	396878209	TOU-GS1A	83 Laundry Mutual 8	Laguna Woods	18	21	8,268	\$772	75	254%
3501801	222013-757916	396878209	TOU-GS1A	47 Laundry Mutual 3	Laguna Woods	18	21	8,250	\$727	75	254%
1197247	222013-141596	396878209	TOU-GS1A	133 Laundry Mutual 13	Laguna Woods	14	16	8,228	\$902	75	355%
3431337	222013-116683	396878209	TOU-GS1A	49 Laundry Mutual 4	Laguna Woods	19	22	8,227	\$685	75	236%
1197302	222013-737517	396878209	TOU-GS1A	68 Laundry Mutual 7	Laguna Woods	16	19	8,175	\$769	75	298%
1197248	222013-141535	396878209	TOU-GS1A	103 Laundry Mutual 14	Laguna Woods	17	20	8,169	\$597	75	275%
1197306	222013-737567	396878209	TOU-GS1A	71 Laundry Mutual 7	Laguna Woods	17	20	8,138	\$754	75	275%
3605612	222013-115242	396878209	TOU-GS1A	17 Laundry Mutual 2	Laguna Woods	16	19	8,125	\$885	75	298%
1197249	222013-141525	396878209	TOU-GS1A	105 Laundry Mutual 14	Laguna Woods	18	21	8,082	\$613	75	254%
3605621	222013-115288	396878209	TOU-GS1A	27 Laundry Mutual 2	Laguna Woods	17	20	8,075	\$705	75	275%
1197277	222013-115264	396878209	TOU-GS1A	18 Laundry Mutual 2	Laguna Woods	15	18	8,058	\$913	75	325%
1197245	222013-115221	396878209	TOU-GS1A	131 Laundry Mutual 13	Laguna Woods	15	18	8,021	\$874	75	325%
3605619	222013-146891	396878209	TOU-GS1A	25 Laundry Mutual 2	Laguna Woods	18	21	8,006	\$734	75	254%
3501668	222013-741823	396878209	TOU-GS1A	5 Laundry Mutual 1	Laguna Woods	19	22	7,991	\$714	75	236%
3501799	222013-757919	396878209	TOU-GS1A	45 Laundry Mutual 3	Laguna Woods	16	19	7,982	\$658	75	298%
3760197	222013-148824	396878209	TOU-GS1A	7 Laundry Mutual 1	Laguna Woods	13	15	7,931	\$868	75	390%
3606238	222013-760197	396878209	TOU-GS1A	127 Laundry Mutual 13	Laguna Woods	18	21	7,876	\$722	75	254%
3432946	222013-116466	396878209	TOU-GS1A	62 Laundry Mutual 6	Laguna Woods	18	21	7,849	\$677	75	254%
3606235	222013-141555	396878209	TOU-GS1A	99 Laundry Mutual 12	Laguna Woods	19	22	7,748	\$574	75	236%
3605617	222013-111782	396878209	TOU-GS1A	21 Laundry Mutual 2	Laguna Woods	18	21	7,724	\$881	75	254%
1197239	222013-141553	396878209	TOU-GS1A	98 Laundry Mutual 12	Laguna Woods	16	19	7,683	\$612	75	298%
1197312	222013-145102	396878209	TOU-GS1A	87 Laundry Mutual 8	Laguna Woods	17	20	7,640	\$736	75	275%
3501802	222013-737706	396878209	TOU-GS1A	42 Laundry Mutual 3	Laguna Woods	15	18	7,609	\$734	75	325%
3606234	222013-141554	396878209	TOU-GS1A	97 Laundry Mutual 12	Laguna Woods	18	21	7,579	\$554	75	254%
1197230	222013-115217	396878209	TOU-GS1A	3 Laundry Mutual 1	Laguna Woods	16	19	7,386	\$861	75	298%
3433304	222013-141579	396878209	TOU-GS1A	150 Laundry Mutual 16	Laguna Woods	17	20	7,318	\$1,395	75	275%
3501800	222013-737705	396878209	TOU-GS1A	46 Laundry Mutual 3	Laguna Woods	17	20	7,258	\$668	75	275%
3605623	222013-141511	396878209	TOU-GS1A	31 Laundry Mutual 2	Laguna Woods	18	21	7,258	\$675	100	372%
1197317	222013-141548	400214029	TOU-GS1A	93 Laundry Mutual 9	Laguna Woods	19	22	7,194	\$708	75	236%
3501670	222013-144544	396878209	TOU-GS1A	2 Calle Aragon L	Laguna Woods	17	20	7,163	\$823	75	275%
3760202	222013-145100	396878209	TOU-GS1A	84 Laundry Mutual 8	Laguna Woods	15	18	7,119	\$679	75	325%
3432948	222013-141746	396878209	TOU-GS1A	77 Laundry Mutual 6	Laguna Woods	16	19	7,113	\$712	75	298%

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWh	Annual Revenue	SCE Transformer Size (Est.)	SCE Transformer Capacity
3431343	222013-759172	396878209	TOU-GS1A	55 Laundry Mutual 4	Laguna Woods	17	20	7,074	\$638	75	275%
3433303	222013-821716	396878209	TOU-GS1A	142 Laundry Mutual 15	Laguna Woods	14	16	7,060	\$406	75	355%
1197303	222013-737565	396878209	TOU-GS1A	74 Laundry Mutual 7	Laguna Woods	18	21	7,043	\$707	75	254%
3432951	222013-737564	396878209	TOU-GS1A	73 Laundry Mutual 7	Laguna Woods	14	16	7,012	\$695	75	355%
3503149	222013-115245	396878209	TOU-GS1A	120 Laundry Mutual 11	Laguna Woods	19	22	6,975	\$814	75	236%
3605615	223000-015465	397090895	TOU-GS1A	23 Laundry Mutual 2	Laguna Woods	20	24	6,687	\$818	75	219%
3606236	222013-141598	396878209	TOU-GS1A	109 Laundry Mutual 12	Laguna Woods	16	19	6,660	\$564	75	298%
1197265	222013-116282	396878209	TOU-GS1A	157 Laundry Mutual 17	Laguna Woods	18	21	6,642	\$402	75	254%
1197278	222013-818909	396878209	TOU-GS1A	29 Laundry Mutual 2	Laguna Woods	15	18	6,606	\$655	75	325%
3432952	222013-115292	396878209	TOU-GS1A	89 Laundry Mutual 9	Laguna Woods	17	20	6,597	\$403	100	400%
1197257	222013-821743	396878209	TOU-GS1A	143 Laundry Mutual 15	Laguna Woods	18	21	6,309	\$398	75	254%
1197255	222013-115220	396878209	TOU-GS1A	138 Laundry Mutual 15	Laguna Woods	17	20	6,218	\$739	75	275%
3606233	222013-824385	396878209	TOU-GS1A	96 Laundry Mutual 12	Laguna Woods	15	18	6,024	\$527	75	325%
1197266	222013-758661	396878209	TOU-GS1A	155 Laundry Mutual 17	Laguna Woods	16	19	6,002	\$390	75	298%
1703277	222013-115223	396878209	TOU-GS1A	137 Laundry Mutual 15	Laguna Woods	15	18	5,976	\$727	75	325%
3606230	222013-141550	396878209	TOU-GS1A	94 Laundry Mutual 12	Laguna Woods	13	15	5,973	\$504	75	390%
3606232	222013-141551	396878209	TOU-GS1A	95 Laundry Mutual 12	Laguna Woods	17	20	5,953	\$508	75	275%
3503134	222013-148005	396878209	TOU-GS1A	80 Laundry Mutual 8	Laguna Woods	15	18	5,711	\$632	75	325%
3431340	223000-024864	400176020	TOU-GS1A	52 Laundry Mutual 4	Laguna Woods	17	20	5,668	\$667	75	275%
3501794	222013-737729	396878209	TOU-GS1A	34 Laundry Mutual 3	Laguna Woods	18	21	5,526	\$615	75	254%
3431339	222013-116281	396878209	TOU-GS1A	51 Laundry Mutual 4	Laguna Woods	17	20	5,500	\$535	75	275%
3503137	222013-145101	396878209	TOU-GS1A	86 Laundry Mutual 8	Laguna Woods	16	19	5,438	\$638	75	298%
3503146	222013-760176	396878209	TOU-GS1A	113 Laundry Mutual 11	Laguna Woods	19	22	5,184	\$694	75	236%
3604923	222013-682029	396878209	TOU-GS1A	60 Laundry Mutual 5	Laguna Woods	13	15	4,986	\$515	75	390%
1197313	223000-017603	395680549	TOU-GS1A	90 Laundry Mutual 9	Laguna Woods	17	20	4,895	\$637	100	400%
1197314	223000-022790	395886872	TOU-GS1A	91 Laundry Mutual 9	Laguna Woods	16	19	4,748	\$372	75	298%
1197316	223000-017143	396613820	TOU-GS1A	92 Laundry Mutual 9	Laguna Woods	18	21	4,565	\$523	75	254%
3606242	222013-141532	396878209	TOU-GS1A	101 Laundry Mutual 14	Laguna Woods	16	19	4,353	\$462	75	298%
3760199	223000-004410	396229023	TOU-GS1A	24 Laundry Mutual 2	Laguna Woods	16	19	3,782	\$550	75	298%
3431338	223000-025509	396789554	TOU-GS1A	50 Laundry Mutual 4	Laguna Woods	17	20	3,703	\$451	75	275%
24021161	222013-824387	396878209	TOU-GS1A	1 Aliso Creek Meter	Laguna Woods	6	7	2,105	\$594	75	963%
3503138	222013-759585	396878209	TOU-GS1A	757 Calle Aragon	Laguna Woods	3	4	1,757	\$553	UNKNOW	N/A
45007855	222014-068364	396878209	TOU-GS1A	45 Calle Aragon	Laguna Woods	0	0	773	\$403	UNKNOW	N/A
41549904	222010-985054	396878209	TOU-GS1A	695 Avenida Sevilla	Laguna Woods	0	0	660	\$318	UNKNOW	N/A
40646014	322010-309816	396878209	TOU-GS1A	271 1/2 Avenida Sevilla	Laguna Woods	0	0	595	\$377	UNKNOW	N/A
36428294	222013-827038	396878209	TOU-GS1A	269 1/2 Avenida Sevilla	Laguna Woods	0	0	588	\$376	UNKNOW	N/A
41175054	222010-813294	396878209	TOU-GS1A	272 Avenida Sevilla Hm	Laguna Woods	0	0	497	\$362	UNKNOW	N/A
23306767	222013-146493	396878209	TOU-GS1A	865 1/2 Ronda Mendoza	Laguna Woods	0	0	337	\$339	UNKNOW	N/A
30790331	222013-145058	396878209	TOU-GS1A	124 Via Estrada	Laguna Woods	0	0	313	\$335	UNKNOW	N/A
23306766	222013-821740	396878209	TOU-GS1A	845 1/2 Ronda Mendoza	Laguna Woods	0	0	311	\$335	UNKNOW	N/A
24722000	222013-760172	396878209	TOU-GS1A	812 1/2 Ronda Mendoza	Laguna Woods	0	0	307	\$335	UNKNOW	N/A
25491508	222013-111757	396878209	TOU-GS1A	46 1/2 Calle Aragon	Laguna Woods	0	0	305	\$335	UNKNOW	N/A
27052709	222013-113385	396878209	TOU-GS1A	331 Avenida Sevilla	Laguna Woods	0	0	285	\$333	UNKNOW	N/A
32757800	222013-113384	396878209	TOU-GS1A	464 1/2 Avenida Sevilla	Laguna Woods	0	0	282	\$331	UNKNOW	N/A
29037748	222013-111783	396878209	TOU-GS1A	73 1/2 Calle Aragon	Laguna Woods	0	0	276	\$336	UNKNOW	N/A
20365077	222013-142776	396878209	TOU-GS1A	1 1/2 Via Castilla	Laguna Woods	0	0	255	\$326	UNKNOW	N/A
30785248	222013-758663	396878209	TOU-GS1A	958 Calle Aragon	Laguna Woods	0	0	239	\$325	UNKNOW	N/A
19922904	222013-737704	396878209	TOU-GS1A	226 1/2 Avenida Majorca	Laguna Woods	0	0	229	\$323	UNKNOW	N/A
27850444	222013-747639	396878209	TOU-GS1A	481 Calle Cadiz	Laguna Woods	0	0	224	\$323	UNKNOW	N/A

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWh	Annual Revenue	SCE Transformer Size (Est.)	SCE Transformer Capacity
32551373	222013-682030	396878209	TOU-GS1A	324 1/2 Avenida Carmel	Laguna Woods	0	0	208	\$320	UNKNOWN	N/A
20365054	222013-146889	396878209	TOU-GS1A	92 1/2 Calle Aragon	Laguna Woods	0	0	201	\$319	UNKNOWN	N/A
29451243	222013-743125	396878209	TOU-GS1A	136 1/2 Avenida Majorca	Laguna Woods	0	0	200	\$319	UNKNOWN	N/A
21310296	222013-818910	396878209	TOU-GS1A	24581 Calle Cadiz 57	Laguna Woods	0	0	193	\$318	UNKNOWN	N/A
27318952	222013-111759	396878209	TOU-GS1A	55 Calle Aragon	Laguna Woods	0	0	178	\$316	UNKNOWN	N/A
19922998	222013-146890	396878209	TOU-GS1A	95 1/2 Calle Aragon	Laguna Woods	0	0	173	\$315	UNKNOWN	N/A
20365129	222013-113730	396878209	TOU-GS1A	530 1/2 Via Estrada	Laguna Woods	0	0	158	\$313	UNKNOWN	N/A
19923020	222013-143644	396878209	TOU-GS1A	844 1/2 Ronda Mendoza	Laguna Woods	0	0	125	\$308	UNKNOWN	N/A
21310315	222013-821742	396878209	TOU-GS1A	25311 Ronda Mendoza 866	Laguna Woods	0	0	113	\$306	UNKNOWN	N/A
19922932	222013-736064	396878209	TOU-GS1A	723 1/2 Avenida Majorca	Laguna Woods	0	0	111	\$306	UNKNOWN	N/A
19814024	222013-821719	396878209	TOU-GS1A	886 1/2 Ronda Sevilla	Laguna Woods	0	0	95	\$304	UNKNOWN	N/A
29392921	222013-736134	396878209	TOU-GS1A	743 1/2 Avenida Majorca	Laguna Woods	0	0	95	\$303	UNKNOWN	N/A
1128336	222010-510499	396878209	TOU-GS1A	23987 Paseo De Valencia	Laguna Woods	0	0	0	\$289	UNKNOWN	N/A

Appendix E – SCE Correspondence Timeline

Laguna Woods Data Request, Timeline, and Issues

- August 22nd, 2018 – Requested the following in an email from Christian Torres
 - “...we're looking for the following attributes ideally in spreadsheet form:
 - Physical location
 - Capacities
 - Approximate latitude/longitude
 - Accounts that correspond to them for meters on Laguna Woods Village customer accounts (common areas).”
- August 23rd – Christian Torres introduces TEC to Loren Palmer to support
 - Loren confirmed that we are unable to share specific information on SCE infrastructure and SCE needs to understand what the end goal for this project is. Does LWV plan to increase load?
- Sept. 12th – TEC follows up with SCE to understand denial request for information and whether or not SCE is able to provide *any* information into what parts of the electric infrastructure the utility owns vs what Laguna Woods is responsible for? At this time, SCE is supposedly working on part of the data request.
- November 5th, 2018 – After receiving LWV customer meter specific data, RH follows-up with Loren Palmer at SCE. Meter data received, but no transformer data that was in original request. Rebecca shares an example of another utility's GIS map (redacted), for demonstration and requests a GIS distribution map from SCE.
- November 7th – Jad Farrah, Distribution Engineer, from SCE calls Rebecca and requests meter data for the LWV accounts to potentially add transformer data to. He is still following up internally to see what they can and cannot provide
- November 7th – Rebecca provides SCE with the meter information they have on file for LWV customers
- November 8th: Jad shares that the info has been shared with his Field Engineering team and he does not have access to any GIS information
- November 14th – Rebecca follows up with SCE to request updates on expected data
- November 19th - Rebecca follows up with SCE to request updates
- Nov 27th - Rebecca follows up with SCE to request updates
- December 12 – Rebecca emails Jad email string highlighting the original data request chain showing request has been ongoing for 6 months
- December – Jad/SCE is supposedly working on the data request
- January 13th – Rebecca follows up with SCE to request updates
- January 14th – SCE provides an invoice for the data they were able to collect.

- January 21 – TEC reiterates original data request and what they assumed SCE would be sharing before paying invoice
 - GPS coordinates for the transformers -“We’ll need to know where the transformers are located if they are going to serve additional loads, such as the EV chargers.
 - Max load of each meter (kVA) - This will allow our team to evaluate if the transformers are maxed out, or if they could handle some added load.”
- January 23rd – SCE will look into how much the invoice will change for the additional requested data
- Jan 30th – SCE shares their team is trying to get the data
- February 6 – TEC follows-up with SCE for the data
- February 6 – SCE calls TEC to notify they can’t provide the data as requested and asks TEC to use meter information to calculate the Transformer loads
- Feb 11th – TEC pays invoice for Data
- Feb 18th – TEC follows up with SCE about receipt of invoice payment, no responses
- Feb 19th – SCE shares they didn’t receive payment
- Feb 25 – SCE still hasn’t received payment
- Feb 26 – TEC cancels check because SCE contact was not routed the payment and submits payment electronically, expects SCE receipt within 48 hours
- March 5th – TEC follows-up with SCE to determine if payment was received
- March 13th – SCE finally receives payment
- March 14th – SCE sends data to Chris Naylor
- March 18th – SCE sends GRF data that wasn’t shared initially
- March 19th – TEC requests call with SCE to discuss data issues
- March 22nd – TRC, TEC, and SCE have call to discuss missing data
 - No way to determine total transformer load information given that we don’t have all of the representative meters & Incomplete location data
- April 18th – SCE shares that they cannot share the data required due to customer Confidentiality Rules
 - We later find out this is the 15/15 Rule
- April 22nd – TEC reaches out to alternative contacts we have at SCE – Javier Mariscal for support on Data Request
- April 26th – Call with Javier at SCE to discuss data request
 - Javier suggested asking LWV if they would want to be involved in collaborating with SCE. Javier thought we had a good case to try and elevate this within SCE – LWV is trying to do the right thing by electrifying their fleet. Javier requests for summary of the problem, data requested, and let him know who else we (or LWV) have tried to involve from SCE.
- April 30th – Summary provided to Javier

- May 3rd – Javier indicates he will reach out to “Local Planning team”/ Jad & Steve, to coordinate efforts
- May 3rd week: TRC reaches out to Jad/Steven with Planning to identify pathways to continue proceeding to obtain information
- May 9th – Rebecca requests Jad’s supervisors details and asks about 15/15 rule
- May 14th – Jad indicates his team is scheduling a meeting to discuss the data request, Rebecca asks if TEC Project Team can participate in person. Jad says the 15/15 rule is not the reason they can’t share data (This is not what he had shared on the phone in recent conversations)
- May 15th – Jad requests information Rebecca had suggested as approach to Plan B
- May 15th – Rebecca reiterates specific and original request to SCE and clarifies that the other information (Plan B) is secondary to initial request
 - GPS coordinates and sizes for the transformers - We referenced SCE’s DERIM map while in the field and unfortunately, found that the map was missing transformers and switchgears based on our field observations. We need to know where the transformers are located, sizes and what LWV meters they serve (we have a CISR for LWV meters) so that we can evaluate if they can serve additional loads, such as the EV chargers.
- May 16th – Jad resends data originally provided because he thinks it’s addressing our original and reiterated request.
- May 16th – Rebecca reminds Jad that we already received this information and even had a follow-up call with him to explain what the gaps were
- May 17th – Jad shares that Account Representative, Christian Torres, will be setting up a call with us to discuss our questions or concerns
- June 19th - Meeting with SCE to discuss transformer data, 2pm-3:30pm



THIRD LAGUNA HILLS MUTUAL ELECTRICAL INFRASTRUCTURE ASSESSMENT

Prepared by The Energy Coalition with TRC
on behalf of Laguna Woods Village

October 4, 2019

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1 List of Electric Infrastructure Definitions

- **Dry-Type Transformer** - A solid dielectric device that is installed underground in a vault that reduces the voltage to a usable level.
- **Electrical Equipment** – A general term to describe materials, fittings, devices, appliances, fixtures, and apparatus used in connection with electrical facilities.
- **Emergency Panels** – Panels that are dedicated to maintaining electrical service to critical loads (some lighting, fire systems, computers, etc.) during system outages.
- **Energy Management System (EMS)** – Controls that monitor and optimize the energy usage for electrical facilities.
- **Feeder Line** – A high voltage (12,000V) SCE electrical line that serves the LWV electrical facilities.
- **Main Panel** – The LWV panel that accepts the SCE service for each of the facilities.
- **Pad-Mounted Transformer** – An oil filled device that is mounted on a concrete or composite pad that reduces the voltage to a usable level throughout LWV.
- **Sub-Surface Transformer** – An oil filled device that is installed underground in a vault that reduces the voltage to a usable level.
- **Sub-Panel** – A separate smaller electrical panel that is fed from a larger piece of switchgear and serves other electrical load.
- **Switchgear** – A single electrical panel or assembly of panels on which are mounted switches, fuses, bus gear, instruments, and other electrical equipment used to serve the electrical load.
- **Service Line** – A low voltage (277/480V, 120/208V or 120/240V) line that serves LWV electrical facilities.
- **Transformer** – An apparatus used to reduce or increase the voltage. In the case of these reports, the transformers are used to reduce the voltage to a usable level (277/480V, 120/208V or 120/240V), so that electrical loads can be served.
- **Voltage** - Voltage is what makes electric charges move. It is the 'push' that causes charges to move in a wire or other electrical conductor. It can be thought of as the force that pushes the charges, but it is not a force.

2 Executive Summary

Laguna Woods Village (LWV) is a gated retirement community with a population of approximately 16,000 residents. The governance of the community is organized under the California Non-Profit Mutual Benefit Corporation Law. There are four such corporations, three of which are mutual housing corporations (Mutuals) and the fourth is the Golden Rain Foundation (GRF). The community was constructed in 1963 and has an aging infrastructure. The residents have experienced blown fuses, transformer failures, and other electrical issues consistent with aging electrical infrastructure. Additionally, the residential mutuals have added electrical loads over the years, such as individual air conditioners, washers and dryers, and plug-in electric vehicle (EV) chargers.

Third Mutual contracted The Energy Coalition (TEC) and TRC to conduct an assessment of the current community electrical infrastructure and prepare a community-wide strategic plan for electrical infrastructure upgrades and EV charging station installation. This electrical infrastructure assessment will provide information to the community to gain an understanding of the existing LWV and Southern California Edison (SCE) infrastructure capabilities to determine what additional electrical loads can be added based on current conditions and identify where upgrades are required to accommodate additional load. As shown in Figure 1, this assessment of current electrical infrastructure is referred to as Task 1 in the approved Scope of Work for Third Mutual. From these results, a strategic action plan will be developed in Task 2 to identify potential upgrades and the corresponding electrical infrastructure needed to service current, 5-, and 10-year load requirements.

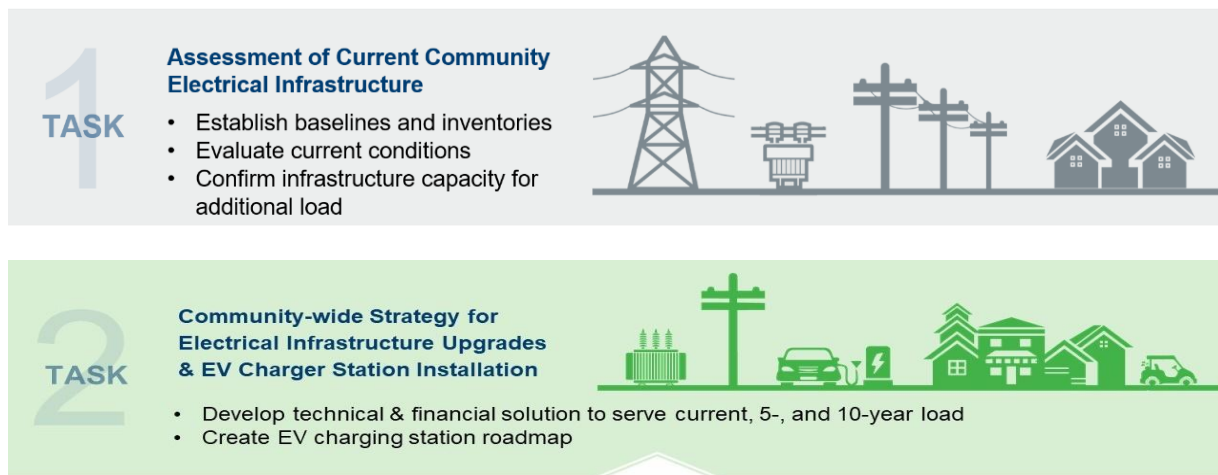


Figure 1: Overview of Tasks

To accomplish the assessment and provide recommendations to reduce electrical outages for improved performance of the system, TEC and TRC conducted field visits to a sampling of Third Laguna Hills Mutual common laundry areas, carports, and parking garages to visually assess the existing LWV and SCE electrical equipment condition. This report summarizes the results of the

assessment for Third Mutual facilities. These components include a review of selected sites to represent the facility portfolio and a condition assessment for the electrical infrastructure.

The condition assessment contains detailed information associated with the electrical infrastructure components, including the overall condition of the equipment, code compliance issues, and recommended action items.

The facilities had a variety of both original and upgraded electrical equipment. TRC provided a preliminary analysis of the potential cost implications for the recommended action items. The assessment identified \$30K-\$40K in *immediate* repair items, however, **some of these items need to be investigated further within Task 2 to make a final recommendation on the roadmap.**

Table 1 below provides a summary of the assessment findings and conditions per facility¹. Section 4 provides more detailed descriptions of the conditions and immediate recommendations.

Table 1: Summary of Assessment Findings and Results

Location ²	Equipment	Overall Existing Condition ^{3,4}	Immediate Recommendations	Budget Cost ⁵
C219 (2392 Mariposa West)	SCE Transformers	The SCE transformers were in good condition.	N/A	N/A
	LWV Switchgear	The existing main and residential panels are the original installations with the original breakers and are in marginal condition. The circuit that services the adjacent garage outlets is undersized for the current load and is showing signs of wear and tear due to the multiple circuit trips.	Immediate repairs need to occur on the outlet circuits that are fed from the house panels. A short-term solution would be to add additional 20A circuits to the garage to accommodate the EV charging demand. At least two additional circuits are recommended. Additional details on this recommendation will be provided in Task 2.	\$1,500/Circuit
C340 (3337 Punta Alta)	Solar Panel	There is an 86.3 kW solar installation at C219 (2394 Mariposa West). The equipment was installed in 2017 and interconnected to the SCE grid.	N/A	N/A
	SCE Transformer	The SCE transformers were in unknown condition. They were subsurface and not observable.	N/A	N/A
	LWV Switchgear	The existing main and residential panels are the original installations with the	Immediate repairs need to occur on the outlet circuits that are fed from the hose	\$1,500/Circuit

¹ See Appendix A for a site map.

² Sites were chosen by Cul-De-Sacs (C###) and multiple buildings, parking garages and carpools were fielded within those Cul-De-Sacs.

³ See table 2 on page 14 for the criteria used to rate existing conditions.

⁴ See Section 4 of this report for details on the equipment, and Appendix B for a scoring matrix of each piece of equipment evaluated.

⁵ These costs are engineering estimates based on material and labor costs to provide new panels or additional circuits.

Location ²	Equipment	Overall Existing Condition ^{3,4}	Immediate Recommendations	Budget Cost ⁵
		<p>original breakers and are in marginal condition.</p> <p>The circuit that services the adjacent garage outlets is undersized for the current load and is showing signs of wear and tear due to the multiple circuit trips.</p>	<p>panels. A short-term solution would be to add additional 20A circuits to the garage to accommodate the EV charging demand. At least two additional circuits are recommended. Additional details on this recommendation will be provided in Task 2.</p>	
<p>5370 Punta Alta</p>	<p>SCE Transformer</p> <p>LWV Switchgear</p>	<p>The SCE transformers were in good condition.</p> <p>The existing main and residential panels are the original installations with the original breakers and are in marginal condition.</p> <p>The circuit that services the adjacent garage outlets is undersized for the current load and is showing signs of wear and tear due to the multiple circuit trips.</p>	<p>N/A</p> <p>Immediate repairs need to occur on the outlet circuits that are fed from the hose panels. A short-term solution would be to add additional 20A circuits to the garage to accommodate the EV charging demand. This application will require an additional sub panel. At least two additional circuits are recommended. Additional details on this recommendation will be provided in Task 2.</p>	<p>N/A</p> <p>\$1,500/Circuit plus \$3,000 for a Subpanel</p>
<p>C307 (3075 3083 Serena North)</p>	<p>SCE Transformer</p> <p>LWV Switchgear</p>	<p>SCE transformer was in good condition.</p> <p>The existing panels are the original installation with the original breakers and is in marginal condition.</p> <p>The circuit breaker that services the adjacent carports is undersized for the current load and is showing signs of wear and tear due to the multiple circuit trips.</p>	<p>N/A</p> <p>Immediate repairs need to occur on the carport circuits that are fed from adjacent panels. A short-term solution would be to add an additional 20A circuit to each of the carports to accommodate the EV charging demand. One circuit per covered carport is recommended. Additional details on this recommendation will be provided in Task 2.</p>	<p>N/A</p> <p>\$1,500/Circuit</p>

Location ²	Equipment	Overall Existing Condition ^{3,4}	Immediate Recommendations	Budget Cost ⁵
C327 (3299 to 3311 San Amadeo)	SCE Transformers	The SCE transformers were in unknown condition. They were subsurface and not observable.	N/A	N/A
	LWV Switchgear	The existing house panel is the original panel with the original breakers and is in fair condition. The circuit that services the carport is undersized for the current load and is showing signs of wear and tear due to the multiple circuit trips.	Immediate repairs need to occur on the carport circuits that are fed from the adjacent house panel. A short-term solution would be to add additional 20A circuits to accommodate the EV charging demand. Circuit origination could not be determined. At least two additional circuits are recommended. Additional details on this recommendation will be provided in Task 2.	\$1,500/Circuit
C344 (3423 to 3429 Calle Azul)	SCE Transformers	The SCE transformers were in unknown condition. They were subsurface and not observable.	N/A	N/A
	LWV Switchgear	The existing house panel is the original installation with the original breakers and is enclosed and in fair condition. There were individual detached garages that contained their own power source.	No immediate repairs needed.	N/A
C377 (Various Addresses)	SCE Transformers	The SCE transformers were in unknown condition. They were subsurface and not observable.	N/A	N/A
	LWV Switchgear	The existing house panels were the original installations with the original breakers and in good condition. There were attached garages that contained their own power source.	No immediate repairs needed.	N/A

Table 1: Summary of Assessment Findings and Results

Within Third Mutual’s facilities, there are a total of 53 parking garages with six circuits each and one panel per garage. There are also 44 laundry rooms and 393 carports. Assuming that similar facilities across the community require the same upgrades as those listed in Table 1, the total *estimated* costs for recommended immediate and short term upgrades to the electric infrastructure community wide is **\$1,450,000 - \$1,600,000**⁶.

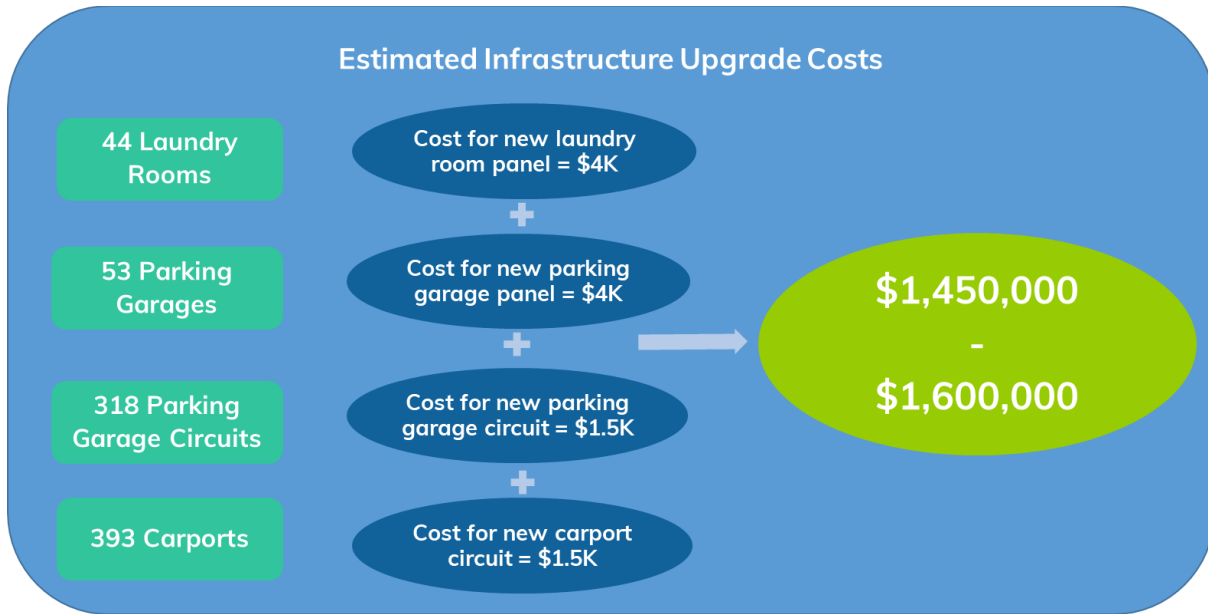


Figure 2: Estimated costs for the recommended upgrades to Third Mutual’s electrical infrastructure.

⁶ The range is based on a 10% contingency added to the total estimated costs.

3 Introduction and Methodology

3.1 Introduction

As part of Task 1, the project team was tasked with performing an assessment of the current electrical infrastructure throughout the Laguna Woods Village (LWV) community for the Third Laguna Hills Mutual, United Laguna Hills Mutual, and the Golden Rain Foundation (GRF). This report summarizes the results of the assessment for Third Laguna Hills Mutual facilities. These components include a review of representative typical facilities for the Mutual and a condition assessment for the electrical infrastructure. The findings and recommended upgrades are then extrapolated to include all facilities in the entire Mutual.

The condition assessment contains detailed information associated with the electrical infrastructure components, including the overall condition of the equipment, code compliance issues, and recommended immediate and/or long-term action items. Review of the components are in Section 3 below. Detailed observations focused on items with deficiencies that require repairs.

3.2 Assessment Methodology

The team’s approach to complete this task included:

- **Data Gathering**⁷:
 - Establishing the existing demand and infrastructure baseline based on review of Southern California Edison (SCE) utility data.
 - Meter level billing data for Third’s SCE assets was obtained from SCE with transformer information only for those assets. SCE did not provide all requested transformer load details as residential load information was deemed confidential. Reference Appendix D for more details on the challenges experienced with SCE.



Figure 3: Electrical Infrastructure Assessment Methodology

⁷ TRC and TEC worked to collect community-wide transformer data from SCE in order to provide a holistic assessment of total load capacity at the transformer level, but after lengthy discussions with SCE, it was

- Interviewing staff to develop an understanding of previous, current, and planned infrastructures.
- Collecting and reviewing information and reports from previous energy studies and completed projects such as the JCI Report from December 2015.
- **Site Visits:** TRC engineers and TEC staff performed field visits to evaluate approximately six typical sites representative of similar sites in the community to gather information about existing electrical facilities and their condition. The scope of the inspection included evaluating the condition of the existing electrical infrastructure and the feasibility of adding EV charging stations to carports and their impact on the existing infrastructure. The team noted any current deficiencies at each location. See Section 4 for additional details.
- **Assessment Report:** Develop a report with findings from infrastructure assessment. Inventory of equipment is listed in Appendix C.
- **Next Steps:** Based on the assessment of the community's sampled electrical infrastructure, the team will develop a community-wide strategy for potential upgrades needed to service current, 5- and 10-year load requirements and the corresponding electrical infrastructure to meet those demands.

3.3 Sampling Plan

Due to the size of the community and similarities across infrastructure, a representative sample of sites throughout the community was selected for evaluation.

3.3.1 Corporation Boundaries

The Laguna Woods electrical services are divided between the three corporations: GRF (clubhouses and common areas), United Laguna Hills Mutual (residential and laundry areas) and Third Laguna Hills Mutual (residential and laundry areas).

Third Laguna Hills Mutual is a non-profit mutual benefit housing corporation that manages, operates, and maintains all common area property. The common area consists of building exteriors, parking garages, carports, and laundry facilities within the Mutual's boundaries.

The boundaries of services for the corporations are provided in Appendix A.

3.3.2 Sampled Areas

The sites inspected were chosen based on representative examples of the different types and age of structures throughout each of the communities. The sample included sites with known

determined that this information could not be shared due to confidentiality issues. The process to work with SCE to obtain data added an unforeseen amount of resources and time to the project.

electrical problems, such as the carport areas, as indicated by the LWV Energy Task Force. Problems include frequent breaker trips and SCE transformer outages.

Emphasis was also placed on facilities that would potentially experience upgrades to add EV charging facilities, such as laundry areas, carports, and parking garages. The following sites were selected for evaluation and are indicated in Appendix A. Sites were chosen by Cul-De-Sacs (C###) and multiple buildings, parking garages and carports were fielded within those Cul-De-Sacs. Addresses are provided below for reference.

- Parking Garages at building C219 (2392 Mariposa West), C340 (3337 Punta Alta), and Units at 5370 Punta Alta
- Carports/Garages at C307 (3075 to 3083 Via Serena North), C327 (3299 to 3311 San Amadeo) and C344 (3423 to 3429 Calle Azul)
- Single Family Homes at C377 (Various Addresses)

A preliminary site visit was conducted by the project team on the 7th of November 2018 to become familiar with the site and equipment. The sampled areas were inspected by the project team on the 19th and 20th of December 2018 with a follow-up visit conducted on the 28th of January 2019 and the 20th of June 2019.

3.4 Asset Condition Rating

All electrical equipment has a useful lifespan that is determined by the installation environment, equipment material types (steel, copper, porcelain, etc.), operating history, and obsolescence. Equipment that is installed in hot, humid, dusty or corrosive environments can have a significantly decreased lifespan depending on the severity. Further, equipment that is operated beyond or outside of its intended design limits can shorten its life. For example, a circuit breaker that is continuously overloaded will operate more times than designed and fail sooner than a properly sized breaker. The requirement to upgrade equipment to add electrical load can cause obsolescence. The original equipment components (breakers, conductors, etc.) may no longer be available or inadequate to serve the most recent electrical load resulting in the need to replace with new equipment. These factors are considered in evaluating all electrical equipment.

TRC rated the condition of the electrical equipment based on the asset condition measurement, as shown in Table 2 below. These evaluation criteria were used to rate the electrical equipment at each of the locations that were fielded. The ratings are provided for the electrical equipment in general with individual ratings for equipment that warrants more in-depth examination.

Based on conversations with maintenance staff, there is a preventative maintenance plan (PMP) in place but it needs to be refined to be fully comprehensive for all equipment. This plan

is in development for all electrical facilities throughout the community. In many cases, the equipment has been scored as a “3” to designate that more frequent corrective maintenance should be conducted. The exceptions are the areas that clearly show maintenance issues.

Table 2: Electrical Equipment Asset Condition Measurement Evaluation Criteria and Example

Asset Rating Score	Asset Age (Percent of Useful Life Remaining)	Asset Condition (Quality, Required Level of Maintenance)	Asset Performance (Reliability, Safety, Meets Industry Standards)	Level of Maintenance (Level of Preventive and Corrective Maintenance)	Asset Condition Rating (Rating Description and Scoring Range)
5	Asset new or nearly new 75% - 100%	Asset new or like new; no visible defects	Asset meets or exceeds all performance and reliability metrics, industry standards	No unfunded or deferred maintenance activities	Excellent 4.8 to 5.0
4	Asset nearing or at its midlife point 50%-75%	Asset showing minimal signs of wear; some slight defects or deterioration	Asset generally meets performance and reliability metrics, industry standards	Corrective maintenance increasing; no skipped preventive or corrective maintenance	Good 4.0 to 4.7
3	Asset has passed its midlife point 25%-50%	Some moderately defective or deteriorated components; expected maintenance needs	Occasional performance and reliability issues; may be substandard in some areas	More frequent corrective maintenance required and some minor component failures	Adequate 3.0 to 3.9
2	Asset nearing or at end of its useful life 0%-25%	Increasing numbers of defects; deteriorating components; growing maintenance needs	Performance and reliability problems becoming more serious; substandard elements	Corrective maintenance activities frequently, including major components needing replacement or rehab	Marginal 2.0 to 2.9
1	Asset passed its useful life	Asset in need of replacement or restoration; may have critically damaged components	Frequent performance and reliability problems; does not meet industry standards	Major component failures	Poor 1.0 to 1.9
0					Non-operable or unsafe 0
Enter Score Here	5	5	5	5	5

4 Electrical Infrastructure Assessment

4.1 Summary

The TRC team completed a walkthrough and visual inspection of the electrical infrastructure for Third Laguna Hills Mutual's parking garages, carports, detached garages, elevators, and residential areas. The sites visited are included in the Field Assessment Site Visit Map in Appendix A. The intent was to gather information on representative building types throughout the community to establish a generalization of facility conditions for most building types. Specifically, there was an emphasis on the common areas of the parking garages and carports. Photographs were taken at many of the facilities and are included in this report.

Figure 4 below shows an overview of the electrical infrastructure and the equipment needed to carry grid supplied electricity to the local consumer. This report will focus on the local infrastructure equipment, starting from the transformer to the end use.

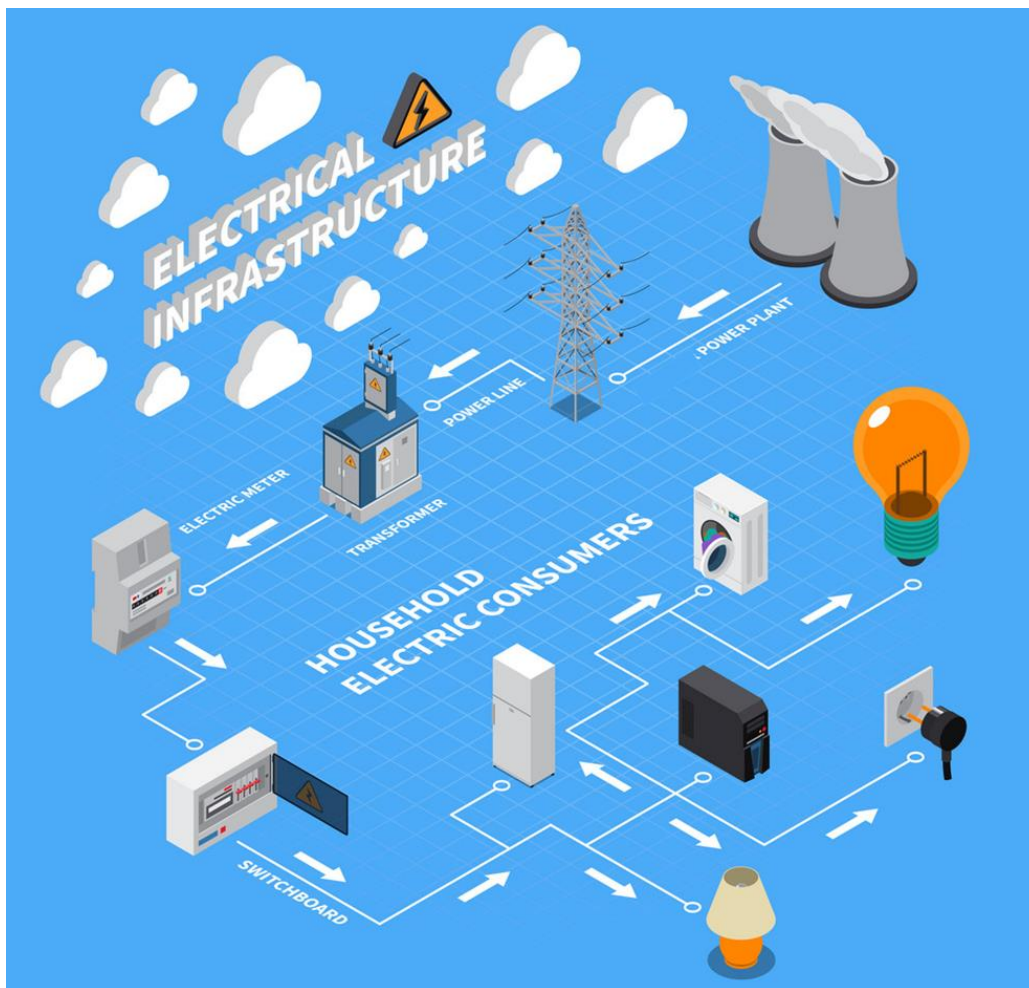


Figure 4: Overview of the electrical infrastructure equipment from the grid supplied electricity to local consumption.

No overhead structures were identified during the walkthrough; all electrical equipment was underground. Select residential carports included roof-mounted solar panels and equipment connected in the common laundry areas.

The SCE transformers were either single-phase pad-mounted (Figure 5) or subsurface (Figure 6) and in varying condition depending on replacement dates. Most of the transformers that were found were of newer vintage and in good to excellent condition. A transformer inventory including transformer ID, location, and total load was requested from SCE for the Third Laguna Hills Mutual boundary, but confidentiality requirements related to the 15/15 Rule prevented them from providing this information. The 15/15 Rule was adopted by the Commission in the Direct Access Proceeding (Commission Decision 97-10-031) to protect customer confidentiality.⁸ The 15/15 rule requires that any aggregated information provided by SCE must be made up of at least 15 customers and a single customer's load must be less than 15% of an assigned category. If the number of customers in the compiled data is below 15, or if a single customer's load is more than 15% of the total data, categories must be combined before the information is released. Without this information, TRC is unable to verify if the transformers are sized adequately for future load. A meeting with SCE was held on the 19th of June 2019 to discuss this request. Based on this meeting, SCE agreed to assess the feasibility of any area identified for additional load and identify if upgrades to their infrastructure is required. While SCE will not provide transformer details, they will assess the capacity of various meters identified as potential electric vehicle charging sites. The details provided by SCE will be applicable to EV charger siting recommendations that will be outlined in Task 2. Additional details regarding the challenges experienced by TEC and TRC to obtain SCE transformer data are outlined in Appendix E. Additional details regarding the challenges experienced by TEC and TRC to obtain SCE transformer data are outlined in Appendix E.

Further, while SCE would not provide the transformer information requested in order to complete the portfolio wide transformer infrastructure assessment as originally intended, SCE confirmed during the in-person meeting that ***any SCE equipment that serves LWV facilities and is deemed to be undersized by SCE, will be upgraded at SCE's expense.***

In some cases, the SCE transformers servicing the facilities could not be located. Transformers may have been covered by vegetation or subsurface. Maps provided by SCE were either missing or inaccurate in these cases.

The Electrical Infrastructure Capacity Summary is included in Appendix C. The report shows the total electrical facilities served by SCE for the Third Mutual community with other

⁸ <https://www1.sce.com/NR/sc3/tm2/pdf/CE274.pdf>

supporting data such as energy usage (kWh) and electrical Demand (kW and kVA). When available, the SCE transformer information is included and the capacity of the transformer was determined. The transformer info from SCE was not readily available for the sites, so the unknown transformer sizes were estimated based on fielded transformer sizes.



Figure 5: Pad-Mounted Transformer Servicing a Third Laguna Hills Mutual Residential Area (C219)



Figure 6: Typical Subsurface Transformer Servicing a Laguna Hills Residential Area

It was also observed that many of the single-story residences have added air conditioning units, potentially maxing out the main breaker rating of 100A. Based on discussions with LWV staff, additional electrical loads were added per National Electrical Code (NEC) and CA code requirements. Verification of the residential units was not included in this scope of work.

All residences in the Third Laguna Hills Mutual, excluding the single-story residences, have either carports, parking garages or detached garages that house cars, golf carts, and other residential belongings. The carports typically have one or more 120V, 20A circuit with a varying number of outlets depending on the number of parking spots. The parking garages have circuits for outlets and lights throughout the parking structure. Golf carts, which are prevalent throughout the Mutual, were charged with a standalone battery charger that either sat on the ground, a concrete block, or in the storage cabinets. Refer to Figure 7 below as an example. There were only a few electric cars observed during the walkthrough. One EV was being charged was using a 120V Class 1 charger.



Figure 7: Example of Golf Cart Charging via Battery Charger in Storage Cabinet Plugged into Outlet

Facilities fielded included the following:

- Parking Garages at building C219 (2392 Via Mariposa West), C340 (3337 Punta Alta), and Units at 5370 Punta Alta
- Carports/Garages at C307 (3075 to 3083 Via Serena North), C327 (3299 to 3311 San Amadeo) and C344 (3423 to 3429 Calle Azul)
- Single Family Homes at C377 (Various Addresses)

This report will address parking garages and carports. Single-family homes were not included within this scope of work and are not addressed.

A comprehensive list of the sampled areas and equipment is provided in Appendix B – Electrical Infrastructure Condition Summary.

4.2 Residential Parking Garages

Parking garages at buildings C219 (2392 Via Mariposa West), C340 (3337 Punta Alta), and Units at 5370 Punta Alta were evaluated.

4.2.1 Existing Equipment Description

Transformers

There are typically four SCE transformers at the parking garages for the multi-story units. Three are single-phase 100kVA 120/240V transformers that service two of the six-meter service entrance sections (Figure 8) each for a total of 12 meters and C219 and the third a separate house panel. They are rated as 4.3 (Good) based on the Asset Condition Measurement referenced in Section 3.4 and installed in approximately 2006. The transformers

also serve the house panels for the residences. A SCE subsurface transformer servicing the panels was observed at C340.

The fourth transformer is a 45kVA 277/480V transformer dedicated to the elevator. The transformer at 5370 Punta Alta is in good condition and was installed in approximately 2005. It is rated as 4.3 (Good) based on the Asset Condition Measurement referenced in Section 3.4.

Capacity calculations could not be completed because the transformers (except the elevator transformer) feed residential customers and meter data could not be obtained from SCE due to the 15/15 Rule.



Figure 8: Pad-Mounted Transformer Servicing a Third Laguna Hills Mutual Residences at C219

Panels

The electrical system servicing the parking garages are similar to one another. Therefore, the unit at C219 and 5370 Punta Alta will be used as examples. The electrical panels servicing the residences at C219 appear to be 600A panels (Figure 9) from the original installation. The equipment labels were illegible and thus assumed to be 600A since they contained 6-100A breakers. The panels are in marginal condition and rated 2.25 (Marginal) based on the Asset Condition Measurement referenced in Section 3.4 above. The panels are showing signs of their age with some rusting (Figure 10).



Figure 9: One of the Six-Meter Residential Panels at C219



Figure 10: One of the Main Breakers for a Residential Panel at C219

The house panel (Figure 11) serves the garage lighting, the recreation room, the fire alarm, and the garage outlets. This is a 400A 120/240V panel. The outlets are served from a 120V, 20A circuit that have multiple receptacles throughout the garage. There are 15 outlets on the one circuit in the garage at 5370 Punta Alta. As with the carports, if two or more EV chargers are plugged in at the same time, the circuit can become overloaded and trip the breaker. Based on the comments about frequent breaker trips from the LWV Energy Task Force and the observed golf cart and EV chargers plugged in the carport outlets, the circuit is undersized

for the load demand. Either the electrical load on the outlets must be reduced or additional outlets need to be added.

The option to add additional outlets to accommodate present and future EV charging would be challenging. The house panel at C219 has available slots to add breakers but would be limited by amount of circuits added. A load analysis to verify that the additional load would be required to meet the NEC requirements. A detailed analysis can be performed in Task 2, once the number and size of additional load is determined.

It is recommended that a separate circuit be added to each parking area in the garage. In the case of this garage that would equate to six additional circuits.

The parking garage underneath the 5370 Punta Alta had an additional challenge in that the house breakers were incorporated into the main panel as shown on Figure 12 in section 4.2 below. Adding circuits to that panel will require a new subpanel to service the load.

Another quick, but less scalable solution, would be to schedule the charging of all EV charging in each parking garage areas. Based on conversations with the staff, this method is already occurring. It involves the residence to coordinate with each other so that the circuit overloads are limited. With the addition of Level 2 EV chargers, this will be more difficult due to the time needed to charge larger EVs.



Figure 11: House Panel 1 at C219

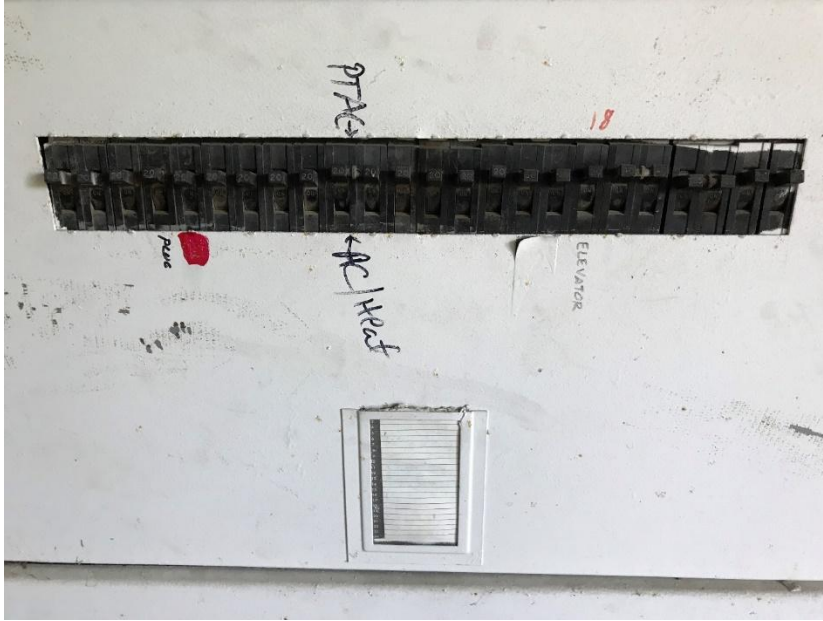


Figure 12: Breakers in Main Panel Servicing 5370 Punta Alta

Emergency Generators

An emergency generator was not present at C219 or C240.

Solar Equipment

Solar panels were recently installed throughout the community. The accompanying equipment (transformer, inverters, switches, and meters) were located within the residing parking garage at C219 as shown in Figure 13.



Figure 13: Accompanying Solar Equipment within Parking Garage at C219

4.2.2 Code Compliance & Safety

The electrical equipment in the parking garages was the original equipment and had wear and tear due to the multiple circuit trips. In particular, the circuit feeding the carports has experienced overloads due to the EV chargers and other loads plugged in at the carport outlets. This needs to be resolved to prevent future failures and outages.

4.2.3 Recommendations

Immediate Repairs and Short Term for Residential Parking Garages

Recommendations	Budget Cost
<ul style="list-style-type: none"> • Immediate repairs need to occur on the garage circuits that are fed from the main panels. Electrical metal tubing is required. • Additional sub panel to accommodate new circuits. 	\$1,500/Circuit \$2,000/Panel
<ul style="list-style-type: none"> • These circuits, and possibly panels, need to be upgraded to accommodate the golf cart and EV charging in the carports. • Before adding electrical loads, an electrical load calculation analysis needs to be performed to ensure the equipment is capable of the additional load. 	TBD in Task 2

Long Term

Recommendations	Budget Cost
Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$180/Parking Garage

4.2.4 Connection to Roadmap

Although there is new SCE equipment related to these sites, there are customer-side opportunities to address. Sizing the circuits and panels to accommodate long term needs of the community will further be evaluated in Task 2.

4.3 Carports/Garages C307 (3075 To 3083 Via Serena North), C327 (3299 To 3311 San Amadeo) and C344 (3423 To 3429 Calle Azul)

4.3.1 Existing Equipment Description

These residences in the Third Laguna Hills Mutual have carports (Figure 15) or detached garages (Figure 14) that house cars, golf carts, and other residential belongings. The carports typically have one 120V, 20A circuit with a varying number of outlets depending on the number of parking spots. Golf carts were prevalent throughout the Mutual. They are charged with standalone battery chargers that either sat on the ground, a concrete block, or in the storage cabinets (Figure 7).

Electrical equipment at carports within cul-de-sacs 307 and 327 were readily available while fielding. The carports at C327 were located under the building and fed from the house panels, and the carports at C307 were similar to the facilities addressed in the United Mutual report. The detached garage electrical equipment at 344 was not observed as access to the private garages was not available.

Capacity calculations could not be completed because the transformers feed residential customers and meter data could not be obtained from SCE due to the 15/15 Rule.



Figure 14: Detached Garages at C344



Figure 15: Under-Building Carports at C327

Transformers

The SCE transformers servicing the carports under the buildings are serviced from an adjacent panel servicing the residences.

Panels/Circuits

The carports at C307 and C327 are serviced by 120V, 20A circuits from the adjacent residences with one outlet for two parking spots in each carport. Outlets were the original installation. TRC observed only a few electric cars during the walkthrough, and the one that was being charged was using a 120V Class 1 charger since that is the only type that can be accommodated from a 120V outlet. The Level 1 EV chargers are a minimum of 15A and the golf cart/battery chargers range from 5A to 15A, with the majority observed to be at the higher range. If two or more of these chargers are plugged into the same outlet circuit in a carport charging two vehicles (cars or golf carts), they will exceed the capabilities of the breaker and conductors that service the outlets. The existing carport electrical equipment was rated 1.25 (Poor) based on the Asset Condition Measurement referenced in Section 3.4 above.

Solar Installations

Solar panels were recently installed throughout the community, mainly located on top of carports. The accompanying equipment (transformer, inverters, switches, and meters) were located on top of the facility roofs. Records show that there are 12 installed solar systems generating 841 kW DC on facilities at Third Laguna Hills Mutual facilities.

4.3.2 Code Compliance & Safety

The circuits in the carports have experienced overloads due to the EV chargers and other loads plugged in at the carport outlets. This needs to be resolved to prevent failure and outages.

4.3.3 Recommendations

Immediate Repairs and Short Term for the Under Building Carport

Recommendations	Budget Cost
<ul style="list-style-type: none">• Immediate repairs need to occur on the carport circuits that are fed from adjacent panels.	\$1,500/Circuit
<ul style="list-style-type: none">• These circuits, and possibly panels, need to be upgraded to accommodate the golf cart and EV charging in the carports.• Before adding electrical loads, an electrical load calculation analysis needs to be performed to ensure the equipment is capable of the additional load.	TBD in Task 2

Long Term

Recommendations	Budget Cost
Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$50/Inspection

4.3.4 Connection to Roadmap

Sizing the circuits and panels to accommodate long term needs of the community will further be evaluated in Task 2.

4.4 Residential Elevators

4.4.1 Existing Equipment Description

Transformers

All multi-story residences have elevators that are serviced by circuits from either residential panels or their own dedicated service. Elevators are serviced by a three-phase transformer sized to the lift motor size. All elevator facilities appeared to be in good condition. Figure 16 provides an example of a pad-mounted transformer servicing an elevator.



Figure 16: Pad-mounted transformer servicing a Third Laguna Hills Mutual Elevator at C219

Panels

The electrical panels are dedicated 480V circuits that service only the elevator load (Figure 17). The circuits were in adequate condition based on Table 2 provided in Section 3.4 above with a rating of 3.25 (Adequate) based on the Asset Condition Measurement referenced in Section 3.4 above. If the panels are not compromised and the elevator load or any other load on the panel does not increase, the equipment should continue to operate as is for a number of years.



Figure 17: 480V Panel Servicing a Third Laguna Hills Mutual Elevator at C219

Emergency Generators

An emergency generator was not present for the elevator facilities.

4.4.2 Code Compliance & Safety

There were no code violations within the elevator facilities.

4.4.3 Recommendations

Immediate Repairs and Short Term for Elevators

Recommendations	Budget Cost
None	N/A

Long Term

Recommendations	Budget Cost
<ul style="list-style-type: none">• Maintain inspection cycle based on manufacturer's recommendations.• Electrical equipment should be inspected at least annually to ensure the integrity of the equipment.	\$50/Panel

4.4.4 Connection to Roadmap

Sizing the circuits and panels to accommodate long term needs of the community will further be evaluated in Task 2.

5 Summary and Next Steps

The TRC team completed a walkthrough and visual inspection of a representative sample of the electrical infrastructure for Third Laguna Hills Mutual's parking garages, carports, detached garages, elevators, and residential areas. The assessments conducted at the specific locations in this report were extrapolated to the existing electrical infrastructure for Third Laguna Hills Mutual's facilities. Below is a summary of the site observations:

- The SCE transformers were either single-phase pad-mounted or subsurface and in varying condition depending on replacement dates. Most of the transformers that were found were of newer vintage and in good to excellent condition. The results are shown in Appendix B.
- The majority of the electrical equipment is original to the facility and has not been upgraded, with the exception of the sites that have added solar. There have been some changes to the panels when load was added. These facilities will require upgrades when additional electrical load is added.
- The parking garages in the Third Mutual are experiencing the same outages as the other carports throughout Third and United Mutual facilities.

The number of electrical problems are increasing due to the limited addition of electric vehicles over the years causing circuit overloads and breaker trips in the parking garage and carports. The most apparent solution to this problem is to add charging capacity to the parking garages, detached garages and carports to accommodate existing and future EV charging demands. However, as there are over 1,200 carports throughout the community between Third Mutual and United Mutual that could potentially receive additional charging capabilities by adding either new 120V outlets or new dedicated EV charging stations, addressing all of them would be an extensive project as detailed in section 4.3 for each site.

In the short term, it would be prudent to resolve part of the electrical overload problems by addressing the areas that are experiencing significant issues. The issues in these areas can be resolved with additional outlets or standalone charging stations. These areas are known and could be addressed while developing an overall, long term plan.

Within Third Mutual's facilities, there are a total of 53 parking garages with six circuits each and one panel per garage. There are also 44 laundry rooms and 393 carports. Assuming that similar facilities across the community require the same upgrades as those listed in Table 1, the total *estimated* costs for recommended immediate and short term upgrades to the electric infrastructure across Third facilities is **\$1,450,000 - \$1,600,000**.⁹

⁹ The range is based on a 10% contingency added to the total estimated costs.



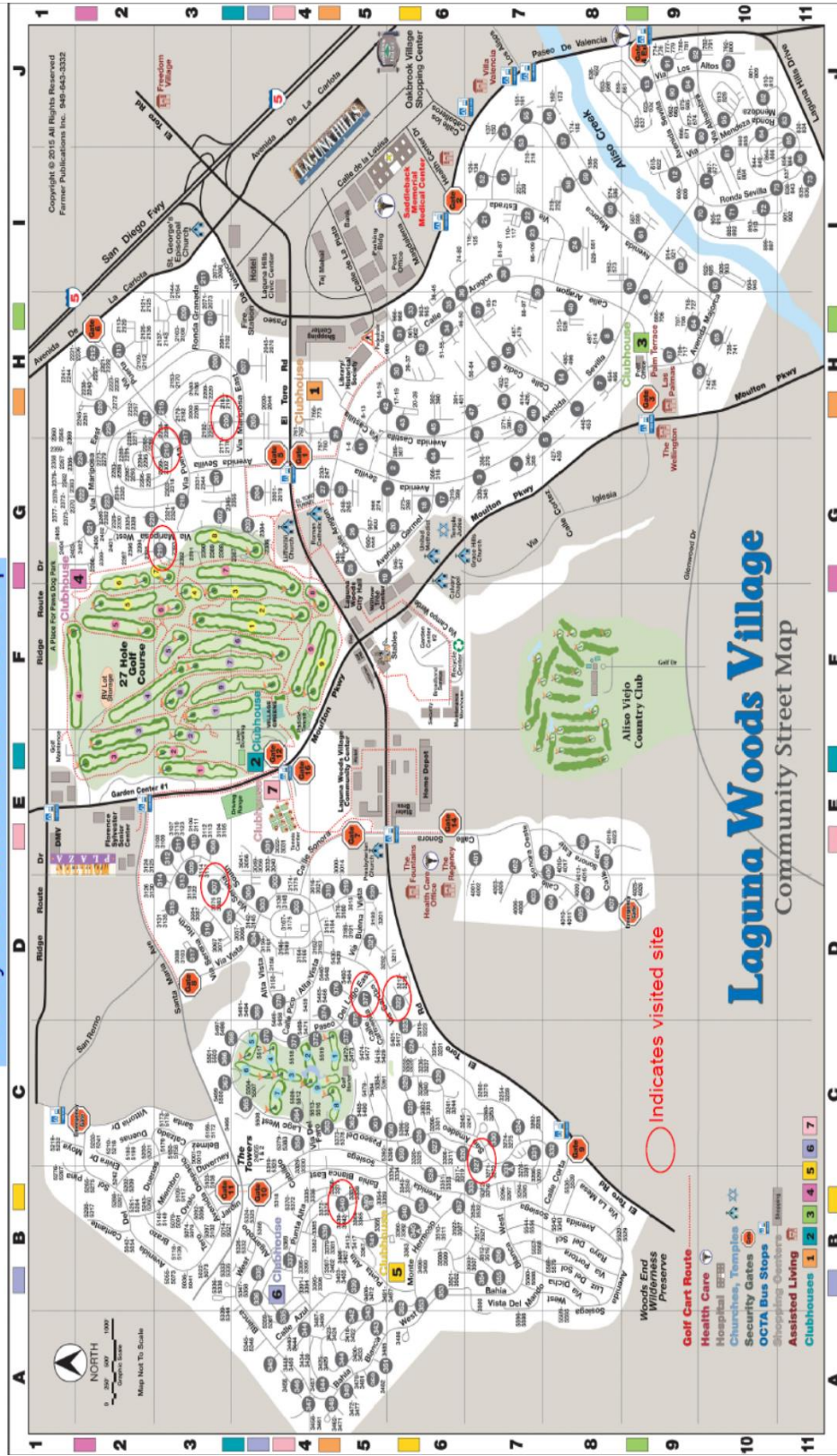
Long term maintenance activities include routine inspections of the parking garage, carport and elevator electrical equipment. Inspection costs are estimated at \$50 per inspection for the elevator and carports, and \$180 per inspection for the parking garages.

This information will also serve as the basis of further analysis to create a comprehensive strategic roadmap that provides recommendations on a range of strategies to satisfy the future energy needs of the community. A number of factors will influence the final plan. Some of these factors include the forecasted electric vehicle penetration in the community, forecasted residential unit energy load growth, and any desired back-up power, energy storage or resilience strategies determined necessary by the client.

Appendix A – Inspected Areas

Inspected Areas

Facility Assessment Site Visit Map



Appendix B – Electrical Infrastructure Condition Summary

Location	Equipment	Asset Condition	Asset Performance	Level of Maintenance	Asset Condition Rating	Action Items	Photo Reference
C219	SCE Transformers	4	4	5	Good (4.3)	Annual SCE Inspection	Figure 8
C219	LWV Switchgear	2	2	3	Marginal (2.3)	Add circuit to carports	Figure 9 Figure 10 Figure 11
C219	LWV Elevator Switchgear	3	3	3	Adequate (3.0)	NA	N/A
C340	SCE Transformer	4	4	5	Good (4.3)	Annual SCE Inspection	Figure 8
C340	LWV Switchgear	2	2	3	Marginal (2.3)	Add circuit to carports	Figure 9 Figure 10 Figure 11
C340	LWV Elevator Switchgear	3	3	3	Adequate (3.0)	NA	N/A
5370 Punta Alta	SCE Transformers	4	4	5	Good (4.3)	Annual SCE Inspection	Figure 8

Location	Equipment	Asset Condition	Asset Performance	Level of Maintenance	Asset Condition Rating	Action Items	Photo Reference
5370 Punta Alta	LWV Switchgear	2	2	3	Marginal (2.3)	Add circuit to carports	Figure 12
5370 Punta Alta	LWV Elevator Switchgear	3	3	3	Adequate (3.0)	NA	N/A
C307	Carport Circuit	2	2	3	Marginal (2.3)	Add circuit to carports	N/A
C327	Carport Circuit	2	2	3	Marginal (2.3)	Add circuit to carports	N/A
C344	House Panel	3	3	3	Adequate (3.0)	NA	N/A

Appendix C – 3rd Laguna Hills Electrical Infrastructure Report

Sites that were visited are highlighted in grey

3RD LAGUNA HILLS MUTUAL - 29625

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWH	Annual Revenue	SCE Transformer Size (Est)	SCE Transformer Capacity
3431484	222013-111430	396619520	TOU-GS1A	3371 Punta Alta	Laguna Woods	23	27	14,439	\$818	100	270%
3431929	222013-113264	28085702	TOU-GS2A	5369 Algarrobo	Laguna Woods	23	27	13,283	\$2,907	100	270%
3431500	222013-147378	397302464	TOU-GS1A	3365 Punta Alta	Laguna Woods	22	26	13,108	\$787	100	286%
3431936	222013-112336	28085702	TOU-GS1A	3335 Punta Alta	Laguna Woods	22	26	12,980	\$395	100	286%
3431927	222013-112338	396635385	TOU-GS1A	5368 Algarrobo	Laguna Woods	22	26	10,819	\$481	100	286%
3433281	223000-017169	396635385	TOU-GS1A	5511 Paseo Del Lago W	Laguna Woods	21	25	22,136	\$1,906	100	305%
1199987	223000-015403	400216123	TOU-GS1A	2390 Mutual 32	Laguna Woods	21	25	19,072	\$290	100	305%
1200013	223000-017350	400969507	TOU-GS1A	2396 Mutual 33	Laguna Woods	21	25	18,752	\$936	100	305%
1199888	223000-017630	396635385	TOU-GS1A	2385 Mutual 32	Laguna Woods	21	25	15,511	\$96	100	305%
3431943	222013-112783	396635385	TOU-GS1B	3338 Punta Alta	Laguna Woods	21	25	12,174	\$4,837	100	305%
3431938	222013-112337	28085702	TOU-GS1A	3336 Punta Alta	Laguna Woods	20	24	13,617	\$413	45	91%
1200330	223000-016084	399956531	TOU-GS1A	30 Laundry Mutual 2353	Laguna Woods	19	22	18,972	\$290	100	347%
1199946	223000-017479	396623068	TOU-GS1A	2391 Mutual 32	Laguna Woods	19	22	17,623	\$1,381	100	347%
1199774	222013-741847	400976510	TOU-GS1A	227 Laundry Mutual 23	Laguna Woods	19	22	16,551	\$375	100	347%
1200215	222013-683611	396623068	TOU-GS1A	241 Laundry Mutual 28	Laguna Woods	19	22	13,047	\$1,071	100	347%
1199752	222013-738235	400980728	TOU-GS1A	224 Laundry Mutual 23	Laguna Woods	19	22	12,127	\$343	100	347%
1199747	222013-116264	396623068	TOU-GS1A	215 Laundry Mutual 24	Laguna Woods	19	22	11,817	\$347	100	347%
1200047	222060-012078	396623068	TOU-GS1A	306 Via Serena	Laguna Woods	19	22	11,347	\$650	100	347%
3431960	222013-112780	396635385	TOU-GS1A	3363 Monte Hermoso	Laguna Woods	19	22	11,297	\$1,180	100	347%
3431495	222013-147377	397302100	TOU-GS1A	3366 Punta Alta	Laguna Woods	19	22	11,095	\$698	100	347%
3431941	222013-112781	396635385	TOU-GS1A	3337 Punta Alta	Laguna Woods	19	22	10,390	\$990	100	347%
1200191	222013-819655	396623068	TOU-GS1A	240 Laundry Mutual 28	Laguna Woods	19	22	10,258	\$337	100	347%
1199858	222013-116514	28085702	TOU-GS1A	303 Calle Sonora	Laguna Woods	19	22	9,240	\$1,683	100	347%
1200241	222013-683608	400971925	TOU-GS1A	29 Laundry Mutual 245	Laguna Woods	19	22	9,166	\$577	100	347%
1199746	222013-116707	396623068	TOU-GS1A	26 Laundry Mutual 228	Laguna Woods	19	22	8,501	\$797	100	347%
1200050	222013-910077	396623068	TOU-GS1A	308 Via Serena	Laguna Woods	19	22	7,541	\$533	100	347%
1183226	223000-013924	28085702	TOU-GS1A	2404 Mutual 35	Laguna Woods	18	21	22,246	\$3,604	100	372%
1199993	223000-006905	396623068	TOU-GS1A	2393 Mutual 33	Laguna Woods	18	21	21,819	\$1,632	100	372%
1183224	223000-013927	396635385	TOU-GS1A	2403 Mutual 35	Laguna Woods	18	21	19,561	\$290	100	372%
1199944	223000-015402	400978243	TOU-GS1A	2389 Mutual 32	Laguna Woods	18	21	19,063	\$421	100	372%
3433292	223000-015052	28085702	TOU-GS1A	5518 Paseo Del Lago E	Laguna Hills	18	21	18,450	\$3,069	100	372%
3431932	223000-017368	28085702	TOU-GS1A	5371 Punta Alta	Laguna Woods	18	21	16,776	\$434	100	372%
1200235	222013-752966	396623068	TOU-GS1A	242 Laundry Mutual 28	Laguna Woods	18	21	15,332	\$1,169	100	372%
1199750	222013-116343	28085702	TOU-GS1A	214 Laundry Mutual 24	Laguna Woods	18	21	14,078	\$626	100	372%
1199749	222013-116342	28085702	TOU-GS1A	125 Laundry Mutual 24	Laguna Woods	18	21	12,432	\$588	100	372%
1200304	222013-116285	396623068	TOU-GS1A	248 Laundry Mutual 30	Laguna Woods	18	21	11,887	\$355	100	372%
1199720	222013-116704	396623068	TOU-GS1A	26 Laundry Mutual 233	Laguna Woods	18	21	11,061	\$334	100	372%
1200217	222013-116706	396623068	TOU-GS1A	238 Laundry Mutual 28	Laguna Woods	18	21	11,032	\$334	100	372%
1199856	222013-116515	396623068	TOU-GS1A	301 Mutual 36	Laguna Woods	18	21	10,692	\$665	100	372%
1200219	222013-742498	400978680	TOU-GS1A	235 Laundry Mutual 27	Laguna Woods	18	21	10,459	\$335	100	372%
1199857	222013-111913	396623068	TOU-GS1A	302 Mutual 36	Laguna Woods	18	21	8,905	\$600	100	372%
1200302	222013-116317	400974051	TOU-GS1A	29 Laundry Mutual 243	Laguna Woods	18	21	8,292	\$472	100	372%
1200308	222013-116316	28085702	TOU-GS1A	30 Laundry Mutual 247	Laguna Woods	18	21	8,225	\$1,491	100	372%
1200279	222013-116286	400972378	TOU-GS1A	29 Laundry Mutual 244	Laguna Woods	18	21	7,924	\$528	100	372%
1200046	222013-990640	396623068	TOU-GS1A	305 Via Serena	Laguna Woods	18	21	7,270	\$528	100	372%
3433229	222013-756242	28085702	TOU-GS1A	4001 Calle Sonora	Laguna Woods	17	20	13,104	\$2,264	100	400%
1200218	222013-683609	396623068	TOU-GS1A	234 Laundry Mutual 27	Laguna Woods	17	20	13,035	\$358	100	400%
3431513	222013-110756	397303983	TOU-GS1A	3486 Bahia Blanca W	Laguna Woods	17	20	12,838	\$748	100	400%
3433231	222013-756241	28085702	TOU-GS1A	4002 Calle Sonora	Laguna Woods	17	20	12,731	\$2,190	100	400%
3431498	222013-147376	397302241	TOU-GS1A	3364 Punta Alta	Laguna Woods	17	20	12,104	\$690	100	400%
1199860	222013-116493	28085702	TOU-GS1A	304 Via Vista	Laguna Woods	17	20	11,332	\$1,995	100	400%

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWH	Annual Revenue	SCE Transformer Size (Est)	SCE Transformer Capacity
3431501	222013-147379	397302548	TOU-GS1A	3367 Punta Alta	Laguna Woods	17	20	11,206	\$712	100	400%
1200356	222013-601475	28085702	TOU-GS1A	31 Laundry Mutual 250	Laguna Woods	17	20	7,523	\$1,417	100	400%
1199724	222013-116341	28085702	TOU-GS1A	26 Laundry Mutual 229	Laguna Woods	17	20	7,441	\$1,391	100	400%
1200221	222013-742520	396623068	TOU-GS1A	237 Laundry Mutual 27	Laguna Woods	17	20	7,435	\$712	100	400%
3433294	223000-015055	28085702	TOU-GS1A	5519 Paseo Del Lago E	Laguna Woods	16	19	20,162	\$3,336	100	431%
1199890	223000-006902	396623068	TOU-GS1A	2386 Mutual 32	Laguna Woods	16	19	19,459	\$1,461	100	431%
1200354	223000-015553	400213385	TOU-GS1A	31 Laundry Mutual 2370	Laguna Hills	16	19	19,128	\$286	100	431%
3433278	223000-016087	396635385	TOU-GS1A	5510 Paseo Del Lago W Elv	Laguna Woods	16	19	19,116	\$1,772	100	431%
3433247	223000-017322	28085702	TOU-GS1A	4010 Calle Sonora Oeste	Laguna Woods	16	19	18,589	\$3,089	100	431%
1199885	223000-009269	401078886	TOU-GS1A	2384 Mutual 32	Laguna Woods	16	19	18,070	\$290	100	431%
3501993	223000-016700	28085702	TOU-GS1A	3244 San Amadeo	Laguna Woods	16	19	17,475	\$2,927	100	431%
1200358	223000-015555	401078290	TOU-GS1A	31 Laundry Mutual 2381	Laguna Woods	16	19	17,254	\$290	100	431%
3501989	223000-007057	28085702	TOU-GS1A	3242 San Amadeo	Laguna Woods	16	19	16,362	\$2,731	100	431%
3433288	223000-015053	28085702	TOU-GS1A	5517 Paseo Del Lago E	Laguna Woods	16	19	16,341	\$2,757	100	431%
1200328	223000-016085	400977138	TOU-GS1A	30 Laundry Mutual 2354	Laguna Woods	16	19	16,191	\$392	100	431%
1199941	223000-014073	401078449	TOU-GS1A	2387 Mutual 32	Laguna Woods	16	19	16,018	\$290	100	431%
3433276	223000-017171	396635385	TOU-GS1A	5515 Paseo Del Lago W	Laguna Woods	16	19	14,881	\$1,447	100	431%
3433299	223000-015054	396635385	TOU-GS1A	5500 Paseo Del Lago W	Laguna Hills	16	19	14,871	\$1,455	100	431%
3605034	222010-836783	28085702	TOU-GS1A	3500 Bahia Blanca W	Laguna Woods	16	19	14,471	\$2,455	100	431%
3501991	223000-007056	28085702	TOU-GS1A	3241 San Amadeo	Laguna Woods	16	19	14,133	\$2,391	100	431%
3433248	223000-017321	28085702	TOU-GS1A	4011 Calle Sonora Oeste	Laguna Woods	16	19	12,531	\$2,177	100	431%
1200332	222013-601554	28085702	TOU-GS1A	31 Laundry Mutual 251	Laguna Hills	16	19	12,111	\$595	100	431%
1199721	222013-737591	28085702	TOU-GS1A	25 Laundry Mutual 231	Laguna Woods	16	19	10,923	\$584	100	431%
1199855	222013-116513	397304288	TOU-GS1A	300 Mutual 36	Laguna Woods	16	19	10,572	\$668	100	431%
1199722	222013-116340	396623068	TOU-GS1A	25 Laundry Mutual 230	Laguna Woods	16	19	10,271	\$347	100	431%
1200048	222013-757306	396623068	TOU-GS1A	307 Via Serena	Laguna Woods	16	19	10,142	\$633	100	431%
1200305	222013-116284	28085702	TOU-GS1A	249 Laundry Mutual 30	Laguna Woods	16	19	8,869	\$500	100	431%
1199718	222013-739180	396623068	TOU-GS1A	220 Laundry Mutual 22	Laguna Woods	16	19	8,797	\$328	100	431%
3433253	222013-756243	28085702	TOU-GS1A	4026 Calle Sonora Este	Laguna Woods	15	18	14,880	\$2,519	100	467%
3433237	222013-144870	28085702	TOU-GS1A	4005 Calle Sonora Oeste	Laguna Woods	15	18	12,006	\$2,076	100	467%
1200303	222013-116287	396623068	TOU-GS1A	29 Laundry Mutual 246	Laguna Woods	15	18	11,306	\$346	100	467%
3433260	222013-756232	28085702	TOU-GS1A	4012 Calle Sonora Oeste	Laguna Woods	15	18	10,927	\$1,915	100	467%
3433235	222013-144868	28085702	TOU-GS1A	4004 Calle Sonora Oeste	Laguna Hills	15	18	10,833	\$1,904	100	467%
1199723	222013-116705	28085702	TOU-GS1A	26 Laundry Mutual 232	Laguna Woods	15	18	9,496	\$1,700	100	467%
1200010	223000-015400	396623068	TOU-GS1A	2394 Mutual 33	Laguna Woods	14	16	19,344	\$1,467	100	507%
1199942	223000-025237	400215943	TOU-GS1A	2388 Mutual 32	Laguna Woods	14	16	17,863	\$290	100	507%
3433244	223000-017320	28085702	TOU-GS1A	4009 Calle Sonora Oeste	Laguna Woods	14	16	17,851	\$2,953	100	507%
1199991	223000-017477	401081377	TOU-GS1A	2395 Mutual 33	Laguna Woods	14	16	17,774	\$290	100	507%
3431517	223000-016702	28085702	TOU-GS1A	3420 Calle Azul	Laguna Woods	14	16	17,476	\$574	100	507%
1183228	223000-015830	400975876	TOU-GS1A	2405 Mutual 35	Laguna Woods	14	16	17,406	\$407	100	507%
3433238	223000-017323	28085702	TOU-GS1A	4006 Calle Sonora Oeste	Laguna Woods	14	16	17,143	\$2,856	100	507%
1200352	223000-015552	396623068	TOU-GS1A	31 Laundry Mutual 2369	Laguna Woods	14	16	16,797	\$1,306	100	507%
3431515	223000-016701	28085702	TOU-GS1A	3421 Calle Azul	Laguna Woods	14	16	16,787	\$558	100	507%
3433297	223000-017170	28085702	TOU-GS1A	5499 Paseo Del Lago W	Laguna Woods	14	16	16,575	\$2,804	100	507%
1200024	223000-015828	396635385	TOU-GS1A	2398 Mutual 34	Laguna Hills	14	16	16,433	\$290	100	507%
1200017	223000-013926	400971180	TOU-GS1A	2397 Mutual 34	Laguna Hills	14	16	16,153	\$814	100	507%
1199989	223000-015401	401078225	TOU-GS1A	2392 Mutual 32	Laguna Woods	14	16	15,670	\$290	100	507%
3433242	223000-025508	28085702	TOU-GS1A	4008 Calle Sonora Oeste	Laguna Woods	14	16	15,078	\$2,553	100	507%
1200326	223000-016086	28085702	TOU-GS1A	30 Laundry Mutual 2355	Laguna Woods	14	16	14,871	\$659	100	507%
1200030	223000-015829	400977757	TOU-GS1A	2400 Mutual 34	Laguna Woods	14	16	14,850	\$379	100	507%
3433240	223000-017307	28085702	TOU-GS1A	4007 Calle Sonora Oeste	Laguna Woods	14	16	14,214	\$2,416	100	507%
1200220	222013-742523	28085702	TOU-GS1A	236 Laundry Mutual 27	Laguna Woods	14	16	14,029	\$682	100	507%
1199719	222013-739183	396623068	TOU-GS1A	222 Laundry Mutual 22	Laguna Woods	14	16	13,606	\$1,070	100	507%

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWH	Annual Revenue	SCE Transformer Size (Est)	SCE Transformer Capacity
3605028	222010-836829	28085702	TOU-GS1A	3501 Bahia Blanca W	Laguna Woods	14	16	13,254	\$2,245	100	507%
3433265	222013-756315	28085702	TOU-GS1A	4015 Calle Sonora Oeste	Laguna Woods	14	16	13,222	\$2,285	100	507%
3433233	222010-770266	28085702	TOU-GS1A	4003 Calle Sonora Oeste	Laguna Hills	14	16	12,732	\$2,198	100	507%
1199751	222013-739182	28085702	TOU-GS1A	221 Laundry Mutual 23	Laguna Woods	14	16	9,529	\$520	100	507%
1200216	222013-819631	396623068	TOU-GS1A	239 Laundry Mutual 28	Laguna Woods	14	16	9,169	\$344	100	507%
1183222	223000-013925	396635385	TOU-GS1A	2402 Mutual 35	Laguna Woods	13	15	17,101	\$290	100	554%
3503144	223000-016880	28085702	TOU-GS1A	969 Calle Aragon	Laguna Woods	13	15	16,505	\$2,772	100	554%
1200026	223000-015831	396635385	TOU-GS1A	2399 Mutual 34	Laguna Woods	13	15	15,451	\$290	100	554%
3501987	223000-019048	28085702	TOU-GS1A	3243 San Amadeo	Laguna Woods	13	15	15,322	\$2,589	100	554%
1200028	223000-006904	396635385	TOU-GS1A	2401 Mutual 34	Laguna Woods	13	15	15,244	\$290	100	554%
3431934	223000-014299	28085702	TOU-GS1A	5372 Punta Alta	Laguna Woods	13	15	15,158	\$416	100	554%
3431930	223000-014298	28085702	TOU-GS1A	5370 Punta Alta	Laguna Woods	13	15	14,954	\$416	100	554%
3433263	222013-756314	28085702	TOU-GS1A	4014 Calle Sonora Oeste	Laguna Woods	13	15	13,341	\$2,284	100	554%
3605031	222013-743806	28085702	TOU-GS1A	3498 Bahia Blanca W	Laguna Woods	13	15	13,124	\$2,248	100	554%
3433262	222013-756313	28085702	TOU-GS1A	4013 Calle Sonora Oeste	Laguna Woods	13	15	12,641	\$2,180	100	554%
3433251	222013-756240	28085702	TOU-GS1A	4025 Calle Sonora Este	Laguna Woods	13	15	11,893	\$2,058	100	554%
1199748	222013-116265	28085702	TOU-GS1A	213 Laundry Mutual 24	Laguna Woods	13	15	11,003	\$571	100	554%
3503142	222013-759586	28085702	TOU-GS1A	969 Calle Aragon	Laguna Woods	13	15	9,721	\$1,716	100	554%
3503141	222013-822867	28085702	TOU-GS1A	968 Calle Aragon	Laguna Woods	13	15	5,786	\$1,161	100	554%
3605030	223000-017369	28085702	TOU-GS1A	3499 Bahia Blanca W	Laguna Woods	11	13	14,074	\$2,383	100	673%
3605026	222014-031447	28085702	TOU-GS1A	3510 Bahia Blanca W	Laguna Woods	11	13	10,931	\$1,916	100	673%
3433228	222013-756235	28085702	TOU-GS1A	24521 Calle Sonora	Laguna Woods	6	7	9,928	\$1,732	100	1317%
3433241	254000-007615	28085702	TOU-GS1A	4007 Calle Sonora Oeste	Laguna Woods	5	6	3,277	\$816	100	1600%
1183229	254000-024779	396635385	TOU-GS1A	2405 Mutual 35 Elv	Laguna Woods	5	6	3,150	\$311	45	665%
3433291	254000-011720	396623068	TOU-GS1A	5518 Paseo Del Lago E	Laguna Woods	5	6	2,586	\$398	100	1600%
3433298	256000-098891	396635385	TOU-GS1A	5499 Paseo Del Lago W	Laguna Woods	4	5	3,500	\$380	100	2025%
1200029	254000-024776	28085702	TOU-GS1A	2401 Mutual 34 Elv	Laguna Woods	4	5	3,232	\$806	45	856%
1200236	254000-011722	399956549	TOU-GS1A	2294 Via Puerta	Laguna Woods	4	5	2,793	\$350	UNKNOWN	N/A
3433245	254000-007807	28085702	TOU-GS1A	4009 Calle Sonora Oeste	Laguna Woods	4	5	2,415	\$680	45	856%
530301	254000-016481	396623068	TOU-GS1A	3367 Punta Alta	Laguna Woods	4	5	2,062	\$378	45	856%
1200012	256000-216339	398126805	TOU-GS1A	2394 Mutual 33 Elv	Laguna Woods	4	5	1,255	\$321	45	856%
3501995	222013-737754	28085702	TOU-GS1A	3086 San Amadeo C/P	Laguna Woods	3	4	4,207	\$925	45	1175%
3503143	254000-024696	28085702	TOU-GS1A	969 Calle Aragon	Laguna Woods	3	4	4,137	\$945	UNKNOWN	N/A
1199889	254000-016987	28085702	TOU-GS1A	2386 Mutual 32 Elv	Laguna Woods	3	4	3,782	\$414	45	1175%
1199887	254000-025016	28085702	TOU-GS1A	2385 Mutual 32 Elv	Laguna Woods	3	4	3,699	\$417	45	1175%
1199891	254000-016986	28085702	TOU-GS1A	2387 Mutual 32 Elv	Laguna Woods	3	4	3,623	\$413	45	1175%
3501980	222013-145595	396635385	TOU-GS1A	3247 San Amadeo	Laguna Woods	3	4	3,605	\$580	45	1175%
1200058	222013-110746	396623068	TOU-GS1A	3104 Via Serena S	Laguna Woods	3	4	3,597	\$424	UNKNOWN	N/A
1200104	222013-112868	396623068	TOU-GS1A	3073 Via Serena N	Laguna Woods	3	4	3,594	\$405	UNKNOWN	N/A
1200025	254000-024540	28085702	TOU-GS1A	2398 Mutual 34 Elv	Laguna Woods	3	4	3,552	\$855	45	1175%
1183227	254000-024778	396623068	TOU-GS1A	2404 Mutual 35 Elv	Laguna Woods	3	4	3,544	\$542	45	1175%
1200355	254000-024753	396623068	TOU-GS1A	31 Laundry Mutual Elv	Laguna Woods	3	4	3,442	\$333	45	1175%
1199945	254000-016984	28085702	TOU-GS1A	2389 Mutual 32 Elv	Laguna Hills	3	4	3,344	\$395	45	1175%
1200015	254000-008336	28085702	TOU-GS1A	2396 Mutual 33 Elv	Laguna Woods	3	4	3,273	\$812	45	1175%
1199990	254000-002811	28085702	TOU-GS1A	2392 Mutual 33 Elv	Laguna Woods	3	4	3,203	\$802	100	2733%
3431931	254000-013025	28085702	TOU-GS1A	5370 Punta Alta	Laguna Woods	3	4	3,196	\$346	45	1175%
1199992	254000-001738	28085702	TOU-GS1A	2395 Mutual 33 Elv	Laguna Woods	3	4	3,153	\$790	45	1175%
1199886	254000-025017	28085702	TOU-GS1A	2384 Mutual 32 Elv	Laguna Woods	3	4	3,148	\$390	45	1175%
3433277	256000-098379	396635385	TOU-GS1A	5515 Paseo Del Lago W	Laguna Woods	3	4	3,118	\$561	UNKNOWN	N/A
3501992	254000-005916	396635385	TOU-GS1A	3241 San Amadeo	Laguna Woods	3	4	3,116	\$372	UNKNOWN	N/A
1200008	254000-008337	401078142	TOU-GS1A	2393 Mutual 33 Elv	Laguna Woods	3	4	2,970	\$311	45	1175%
1200329	254000-025019	396623068	TOU-GS1A	2354 Via Mariposa W Elv	Laguna Woods	3	4	2,962	\$335	45	1175%
1200306	222013-819653	396623068	TOU-GS1A	30 Laundry Mutual 2339	Laguna Woods	3	4	2,932	\$300	UNKNOWN	N/A

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWH	Annual Revenue	SCE Transformer Size (Est)	SCE Transformer Capacity
3431516	254000-016549	28085702	TOU-GS1A	3421 Calle Azul	Laguna Woods	3	4	2,921	\$368	UNKNOWN	N/A
1200027	254000-024541	396623068	TOU-GS1A	2399 Mutual 34 Elv	Laguna Woods	3	4	2,918	\$311	45	1175%
3501994	254000-016425	28085702	TOU-GS1A	3244 San Amadeo	Laguna Woods	3	4	2,895	\$343	UNKNOWN	N/A
3433246	254000-007805	28085702	TOU-GS1A	4010 Calle Sonora Oeste	Laguna Woods	3	4	2,874	\$756	UNKNOWN	N/A
1199943	254000-016985	28085702	TOU-GS1A	2388 Mutual 32 Elv	Laguna Woods	3	4	2,850	\$383	45	1175%
3433239	254000-024454	28085702	TOU-GS1A	4006 Calle Sonora Oeste	Laguna Hills	3	4	2,768	\$736	45	1175%
3501979	222013-145594	396635385	TOU-GS1A	3246 San Amadeo	Laguna Woods	3	4	2,740	\$469	UNKNOWN	N/A
3433293	254000-011721	397304106	TOU-GS1A	5519 Paseo Del Lago E	Laguna Woods	3	4	2,670	\$416	UNKNOWN	N/A
1183223	254000-024777	396635385	TOU-GS1A	2402 Mutual 35 Elv	Laguna Woods	3	4	2,606	\$311	45	1175%
3433287	254000-011723	396623068	TOU-GS1A	5517 Paseo Del Lago E	Laguna Woods	3	4	2,603	\$406	UNKNOWN	N/A
1467873	254000-005988	396623068	TOU-GS1A	3499 Bahia Blanca W	Laguna Hills	3	4	2,575	\$403	UNKNOWN	N/A
1200237	222013-742497	28085702	TOU-GS1A	29 Laundry Mutual 2297	Laguna Woods	3	4	2,511	\$656	UNKNOWN	N/A
3433249	254000-007806	28085702	TOU-GS1A	4011 Calle Sonora Oeste	Laguna Hills	3	4	2,470	\$690	45	1175%
3433266	254000-012648	28085702	TOU-GS1A	4015 Calle Sonora Oeste	Laguna Woods	3	4	2,459	\$688	UNKNOWN	N/A
3433243	254000-007612	28085702	TOU-GS1A	4008 Calle Sonora Oeste	Laguna Hills	3	4	2,401	\$679	UNKNOWN	N/A
3433282	254000-011439	396635385	TOU-GS1A	5511 Paseo Del Lago W Elv	Laguna Woods	3	4	2,298	\$499	UNKNOWN	N/A
3433300	256000-098262	396635955	TOU-GS1A	5500 Paseo Del Lago W Elv	Laguna Woods	3	4	2,289	\$357	45	1175%
3431933	254000-013024	28085702	TOU-GS1A	5371 Punta Alta	Laguna Woods	3	4	2,288	\$336	UNKNOWN	N/A
1200019	254000-008339	395697675	TOU-GS1A	2397 Mutual 34 Elv	Laguna Hills	3	4	2,119	\$311	45	1175%
3433250	254000-027845	28085702	TOU-GS1A	4025 Calle Sonora Este	Laguna Woods	3	4	2,043	\$623	UNKNOWN	N/A
1200239	222013-742496	28085702	TOU-GS1A	29 Laundry Mutual 2301	Laguna Woods	3	4	1,983	\$578	UNKNOWN	N/A
3431518	254000-016548	396619934	TOU-GS1A	3420 Calle Azul	Laguna Woods	3	4	1,976	\$337	UNKNOWN	N/A
3605032	254000-005989	28085702	TOU-GS1A	3498 Bahia Blanca W	Laguna Woods	3	4	1,906	\$331	UNKNOWN	N/A
3431935	254000-013083	396147548	TOU-GS1A	5372 Punta Alta	Laguna Woods	3	4	1,871	\$331	UNKNOWN	N/A
1199988	254000-001741	401078084	TOU-GS1A	2390 Mutual 32 Elv	Laguna Woods	3	4	1,735	\$311	45	1175%
1200373	256000-203875	399184753	TOU-GS1A	31 Laundry Mutual Elv	Laguna Woods	3	4	1,533	\$416	45	1175%
3433232	254000-011240	28085702	TOU-GS1A	4002 Calle Sonora	Laguna Woods	3	4	1,470	\$534	UNKNOWN	N/A
1200045	254000-024542	396040909	TOU-GS1A	2400 Mutual 34 Elv	Laguna Woods	2	2	2,808	\$371	45	1813%
1844713	254000-002227	28085702	TOU-GS1A	4013 Calle Sonora Oeste	Laguna Woods	2	2	2,678	\$721	UNKNOWN	N/A
1200331	254000-024752	399935352	TOU-GS1A	2353 Via Mariposa W Elv	Laguna Woods	2	2	2,554	\$311	45	1813%
1199859	222013-116492	396623068	TOU-GS1A	3034 Calle Sonora	Laguna Woods	2	2	2,507	\$371	UNKNOWN	N/A
3502000	222013-737769	28085702	TOU-GS1A	3272 San Amadeo	Laguna Woods	2	2	2,500	\$303	UNKNOWN	N/A
3431499	254000-016480	397302357	TOU-GS1A	3365 Punta Alta	Laguna Woods	2	2	2,306	\$396	UNKNOWN	N/A
1200353	254000-024754	396623068	TOU-GS1A	31 Laundry Mutual Elv	Laguna Woods	2	2	2,265	\$329	45	1813%
3433236	254000-007613	28085702	TOU-GS1A	4004 Calle Sonora Oeste	Laguna Hills	2	2	2,234	\$651	45	1813%
3433234	254000-007614	28085702	TOU-GS1A	4003 Calle Sonora Oeste	Laguna Woods	2	2	2,192	\$648	UNKNOWN	N/A
3502001	222013-737753	28085702	TOU-GS1A	3273 San Amadeo	Laguna Woods	2	2	2,191	\$606	UNKNOWN	N/A
3431939	254000-013080	396635385	TOU-GS1A	3336 Punta Alta	Laguna Woods	2	2	2,167	\$484	UNKNOWN	N/A
1200055	222013-817537	396623068	TOU-GS1A	3049 Via Serena S	Laguna Woods	2	2	2,143	\$351	UNKNOWN	N/A
3502024	222013-740559	28085702	TOU-GS1A	3299 Via Carrizo	Laguna Woods	2	2	2,032	\$585	45	1813%
3605027	254000-007316	28085702	TOU-GS1A	3510 Bahia Blanca W	Laguna Woods	2	2	2,020	\$329	UNKNOWN	N/A
1183225	254000-024543	396825168	TOU-GS1A	2403 Mutual 35 Elv	Laguna Woods	2	2	2,013	\$313	45	1813%
3433279	254000-011437	396616211	TOU-GS1A	5510 Paseo Del Lago W Elv	Laguna Woods	2	2	2,012	\$457	UNKNOWN	N/A
3501988	254000-016424	395615479	TOU-GS1A	3243 San Amadeo	Laguna Woods	2	2	1,997	\$382	UNKNOWN	N/A
3501990	254000-005918	28085702	TOU-GS1A	3242 San Amadeo	Laguna Woods	2	2	1,962	\$376	UNKNOWN	N/A
24021143	254000-002228	28085702	TOU-GS1A	4014 Calle Sonora Oeste	Laguna Woods	2	2	1,942	\$607	UNKNOWN	N/A
3431514	254000-016550	28085702	TOU-GS1A	3486 Bahia Blanca W	Laguna Woods	2	2	1,885	\$345	UNKNOWN	N/A
3431485	254000-016482	397301516	TOU-GS1A	3371 Punta Alta	Laguna Woods	2	2	1,872	\$379	UNKNOWN	N/A
3605033	254000-005991	396147704	TOU-GS1A	3500 Bahia Blanca W	Laguna Woods	2	2	1,786	\$328	UNKNOWN	N/A
3431928	254000-013026	28085702	TOU-GS1A	5369 Algarrobo	Laguna Woods	2	2	1,710	\$327	UNKNOWN	N/A
3431942	254000-015059	396635385	TOU-GS1A	3338 Punta Alta	Laguna Woods	2	2	1,707	\$448	UNKNOWN	N/A
1199947	254000-001740	396040883	TOU-GS1A	2391 Mutual 32 Elv	Laguna Woods	2	2	1,701	\$357	45	1813%
3502020	222013-740532	396635385	TOU-GS1A	3303 Via Carrizo	Laguna Woods	2	2	1,606	\$317	UNKNOWN	N/A

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWH	Annual Revenue	SCE Transformer Size (Est)	SCE Transformer Capacity
3433261	254000-002229	28085702	TOU-GS1A	4012 Calle Sonora Oeste	Laguna Woods	2	2	1,577	\$551	UNKNOWN	N/A
1200105	222013-112870	396623068	TOU-GS1A	3070 Via Serena N	Laguna Woods	2	2	1,528	\$320	45	1813%
3605029	254000-005990	28085702	TOU-GS1A	3501 Bahia Blanca W	Laguna Woods	2	2	1,526	\$328	UNKNOWN	N/A
3431959	254000-016551	396635385	TOU-GS1A	3363 Monte Hermoso	Laguna Woods	2	2	1,495	\$431	UNKNOWN	N/A
3433252	254000-011242	28085702	TOU-GS1A	4026 Calle Sonora Este	Laguna Woods	2	2	1,481	\$535	UNKNOWN	N/A
3431937	254000-013082	28085702	TOU-GS1A	3335 Punta Alta	Laguna Woods	2	2	1,478	\$325	UNKNOWN	N/A
3431926	254000-013027	396635385	TOU-GS1A	5368 Algarrobo	Laguna Woods	2	2	1,450	\$339	UNKNOWN	N/A
393128	254000-007804	28085702	TOU-GS1A	4005 Calle Sonora Oeste	Laguna Hills	2	2	1,416	\$526	UNKNOWN	N/A
3191987	222013-112350	396623068	TOU-GS1A	5009 Bahia Blanca	Laguna Woods	2	2	1,407	\$338	UNKNOWN	N/A
3431496	254000-016426	397302159	TOU-GS1A	3366 Punta Alta	Laguna Woods	2	2	1,407	\$367	UNKNOWN	N/A
3431940	254000-015058	396635385	TOU-GS1A	3337 Punta Alta	Laguna Woods	2	2	1,365	\$420	UNKNOWN	N/A
1200142	222013-754861	396623068	TOU-GS1A	3144 Via Vista	Laguna Woods	2	2	1,342	\$331	UNKNOWN	N/A
3433230	254000-024455	28085702	TOU-GS1A	4001 Calle Sonora	Laguna Woods	2	2	1,340	\$517	UNKNOWN	N/A
3431918	222012-906486	396635385	TOU-GS1A	5361 Algarrobo	Laguna Woods	2	2	1,223	\$308	UNKNOWN	N/A
1200056	322010-461357	396623068	TOU-GS1A	3065 Via Serena S Cpt	Laguna Woods	2	2	1,145	\$330	UNKNOWN	N/A
1200051	222013-140172	396623068	TOU-GS1A	3046 Via Serena S	Laguna Woods	2	2	1,106	\$328	UNKNOWN	N/A
1200357	222013-601553	28085702	TOU-GS1A	31 Laundry Mutual 2380	Laguna Woods	2	2	1,054	\$454	UNKNOWN	N/A
1200076	222013-110699	396623068	TOU-GS1A	3110 Via Serena S	Laguna Woods	2	2	983	\$323	UNKNOWN	N/A
3431922	222013-758791	396635385	TOU-GS1A	5012 Algarrobo C/P	Laguna Woods	2	2	976	\$300	UNKNOWN	N/A
3431923	222012-451635	396635385	TOU-GS1A	5017 Algarrobo C/P	Laguna Woods	2	2	955	\$301	45	1813%
1200120	222013-146002	396623068	TOU-GS1A	3168 Via Vista	Laguna Hills	2	2	954	\$325	UNKNOWN	N/A
3431924	222013-758767	396635385	TOU-GS1A	5021 Algarrobo C/P	Laguna Woods	2	2	881	\$299	UNKNOWN	N/A
3431951	222013-112323	28085702	TOU-GS1A	3332 Bahia Blanca E	Laguna Woods	2	2	834	\$409	UNKNOWN	N/A
3431953	222013-113216	28085702	TOU-GS1A	3330 Bahia Blanca E	Laguna Woods	2	2	761	\$398	UNKNOWN	N/A
3431506	222013-118148	397303165	TOU-GS1A	3425 Bahia Blanca W	Laguna Woods	2	2	755	\$315	UNKNOWN	N/A
3431504	222013-111416	397302787	TOU-GS1A	3427 Bahia Blanca W	Laguna Woods	2	2	733	\$315	UNKNOWN	N/A
3431510	222013-116956	397303793	TOU-GS1A	3435 Bahia Blanca W	Laguna Woods	2	2	733	\$316	UNKNOWN	N/A
1200106	222013-111775	396623068	TOU-GS1A	3067 Via Serena N	Laguna Woods	2	2	709	\$315	UNKNOWN	N/A
3501999	222013-737745	28085702	TOU-GS1A	3271 San Amadeo	Laguna Woods	2	2	672	\$293	UNKNOWN	N/A
3431502	222013-111418	397302854	TOU-GS1A	3429 Bahia Blanca W	Laguna Woods	2	2	647	\$312	UNKNOWN	N/A
1200282	222013-683610	28085702	TOU-GS1A	29 Laundry Mutual 2321	Laguna Woods	2	2	568	\$371	UNKNOWN	N/A
1200240	222013-742499	396623068	TOU-GS1A	29 Laundry Mutual 2302	Laguna Woods	2	2	518	\$290	UNKNOWN	N/A
3431917	222013-113241	396635385	TOU-GS1A	5360 Algarrobo	Laguna Woods	2	2	483	\$296	UNKNOWN	N/A
1200281	222013-683584	28085702	TOU-GS1A	29 Laundry Mutual 2320	Laguna Woods	2	2	408	\$348	UNKNOWN	N/A
3431920	222013-114515	396635385	TOU-GS1A	5363 Algarrobo	Laguna Woods	2	2	359	\$295	UNKNOWN	N/A
3431921	222013-114514	396635385	TOU-GS1A	5364 Algarrobo	Laguna Woods	2	2	336	\$293	UNKNOWN	N/A
3431919	222060-012944	396635385	TOU-GS1A	5362 Algarrobo	Laguna Woods	2	2	334	\$293	UNKNOWN	N/A
1200277	222013-819654	396623068	TOU-GS1A	29 Laundry Mutual 2317	Laguna Woods	2	2	198	\$289	UNKNOWN	N/A
3431497	254000-016427	397302191	TOU-GS1A	3364 Punta Alta	Laguna Woods	1	1	1,349	\$361	UNKNOWN	N/A
3501998	222013-737721	396623068	TOU-GS1A	3093 San Amadeo C/P	Laguna Woods	1	1	1,117	\$323	UNKNOWN	N/A
3502023	222013-740558	396147746	TOU-GS1A	3300 Via Carrizo	Laguna Woods	1	1	1,106	\$301	UNKNOWN	N/A
1200049	222013-757307	396623068	TOU-GS1A	3042 Via Serena S	Laguna Woods	1	1	941	\$319	UNKNOWN	N/A
3605035	222013-599280	28085702	TOU-GS1A	24892 Avenida Sosiega	Laguna Woods	1	1	880	\$415	UNKNOWN	N/A
3431480	222013-146953	396623068	TOU-GS1A	3413 Punta Alta	Laguna Woods	1	1	844	\$315	UNKNOWN	N/A
3605038	222013-599283	28085702	TOU-GS1A	24892 Avenida Sosiega	Laguna Woods	1	1	829	\$409	UNKNOWN	N/A
3431503	222013-111419	397302720	TOU-GS1A	3428 Bahia Blanca W	Laguna Woods	1	1	823	\$318	UNKNOWN	N/A
3433274	222013-760543	396635385	TOU-GS1A	5489 Paseo Del Lago W	Laguna Woods	1	1	822	\$349	UNKNOWN	N/A
3431954	222013-113219	28085702	TOU-GS1A	3327 Bahia Blanca E	Laguna Woods	1	1	786	\$402	UNKNOWN	N/A
3431944	222013-112680	396635385	TOU-GS1A	3359 Monte Hermoso	Laguna Woods	1	1	767	\$344	UNKNOWN	N/A
3431950	222013-112320	28085702	TOU-GS1A	3350 Bahia Blanca E	Laguna Woods	1	1	741	\$396	UNKNOWN	N/A
3433267	222013-756290	28085702	TOU-GS1A	4017 Calle Sonora Este	Laguna Woods	1	1	737	\$395	UNKNOWN	N/A
3605036	222013-599281	28085702	TOU-GS1A	24892 Avenida Sosiega	Laguna Woods	1	1	732	\$394	UNKNOWN	N/A
3433254	222013-756289	28085702	TOU-GS1A	4023 Calle Sonora Este	Laguna Woods	1	1	731	\$394	UNKNOWN	N/A

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWH	Annual Revenue	SCE Transformer Size (Est)	SCE Transformer Capacity
3431491	222013-111442	397301953	TOU-GS1A	3398 Punta Alta	Laguna Woods	1	1	729	\$315	UNKNOWN	N/A
3431946	222013-112681	396635385	TOU-GS1A	3357 Monte Hermoso	Laguna Woods	1	1	726	\$341	UNKNOWN	N/A
3431904	222013-112349	28085702	TOU-GS1A	5005 Bahia Blanca	Laguna Woods	1	1	716	\$301	UNKNOWN	N/A
3431483	222013-111428	396620213	TOU-GS1A	3370 Punta Alta	Laguna Woods	1	1	709	\$313	UNKNOWN	N/A
3431507	222013-118151	397303314	TOU-GS1A	3438 Bahia Blanca W	Laguna Woods	1	1	696	\$312	UNKNOWN	N/A
3433255	222013-756288	28085702	TOU-GS1A	4022 Calle Sonora Este	Laguna Woods	1	1	691	\$389	UNKNOWN	N/A
1200280	222013-683587	28085702	TOU-GS1A	29 Laundry Mutual 2318	Laguna Woods	1	1	687	\$392	UNKNOWN	N/A
3431508	222013-118150	397303470	TOU-GS1A	3437 Bahia Blanca W	Laguna Woods	1	1	667	\$312	UNKNOWN	N/A
3431949	222013-112657	396635385	TOU-GS1A	3354 Monte Hermoso	Laguna Woods	1	1	663	\$337	UNKNOWN	N/A
3502017	222013-741851	28085702	TOU-GS1A	3301 Via Carrizo	Laguna Woods	1	1	660	\$383	UNKNOWN	N/A
1200060	222013-110747	396623068	TOU-GS1A	3112 Via Serena S	Laguna Woods	1	1	644	\$310	UNKNOWN	N/A
3605043	222013-281140	28085702	TOU-GS1A	3493 Monte Hermoso	Laguna Woods	1	1	644	\$381	UNKNOWN	N/A
3431488	222013-674844	397301615	TOU-GS1A	3403 Calle Azul	Laguna Woods	1	1	643	\$312	UNKNOWN	N/A
1200118	222013-817538	396623068	TOU-GS1A	22702 Via Serena Cp	Laguna Woods	1	1	640	\$311	UNKNOWN	N/A
1200238	222013-742522	396623068	TOU-GS1A	29 Laundry Mutual 2299	Laguna Woods	1	1	638	\$290	UNKNOWN	N/A
3431479	222013-116237	396623068	TOU-GS1A	3414 Punta Alta	Laguna Woods	1	1	630	\$308	UNKNOWN	N/A
3501996	222013-147027	28085702	TOU-GS1A	3274 San Amadeo	Laguna Woods	1	1	628	\$290	UNKNOWN	N/A
3431509	222013-118149	397303603	TOU-GS1A	3436 Bahia Blanca W	Laguna Woods	1	1	616	\$311	UNKNOWN	N/A
3431892	222013-113192	28085702	TOU-GS1A	5318 Bahia Blanca W	Laguna Woods	1	1	612	\$296	UNKNOWN	N/A
3433284	222013-740993	396635385	TOU-GS1A	5507 Paseo Del Lago W	Laguna Woods	1	1	608	\$333	UNKNOWN	N/A
1200072	222013-110698	396623068	TOU-GS1A	3111 Via Serena S	Laguna Woods	1	1	605	\$305	UNKNOWN	N/A
3605040	222013-281118	28085702	TOU-GS1A	3496 Monte Hermoso	Laguna Woods	1	1	595	\$374	UNKNOWN	N/A
3431511	222013-116959	397303876	TOU-GS1A	3434 Bahia Blanca W	Laguna Woods	1	1	590	\$311	UNKNOWN	N/A
3431505	222013-111417	397303090	TOU-GS1A	3426 Bahia Blanca W	Laguna Woods	1	1	589	\$310	UNKNOWN	N/A
3431948	222013-112658	396635385	TOU-GS1A	3355 Monte Hermoso	Laguna Woods	1	1	589	\$331	UNKNOWN	N/A
3605045	222013-112785	28085702	TOU-GS1A	3491 Monte Hermoso	Laguna Woods	1	1	589	\$373	UNKNOWN	N/A
3431490	222013-146111	397301797	TOU-GS1A	3379 Punta Alta	Laguna Woods	1	1	573	\$309	UNKNOWN	N/A
3502016	222013-740553	28085702	TOU-GS1A	3300 Via Carrizo	Laguna Woods	1	1	555	\$368	UNKNOWN	N/A
1200081	222013-110562	396623068	TOU-GS1A	3123 Via Serena N	Laguna Woods	1	1	548	\$305	UNKNOWN	N/A
1200143	222013-754860	396623068	TOU-GS1A	3171 Via Vista	Laguna Hills	1	1	497	\$304	UNKNOWN	N/A
3502019	222013-740533	28085702	TOU-GS1A	3303 Via Carrizo	Laguna Woods	1	1	495	\$360	UNKNOWN	N/A
3501978	222013-145593	396635385	TOU-GS1A	3245 San Amadeo	Laguna Woods	1	1	486	\$328	UNKNOWN	N/A
1200057	222013-112871	396623068	TOU-GS1A	3063 Via Serena S	Laguna Woods	1	1	479	\$308	UNKNOWN	N/A
3502015	222013-741872	28085702	TOU-GS1A	3299 Via Carrizo	Laguna Woods	1	1	476	\$358	UNKNOWN	N/A
1200273	222013-683586	396623068	TOU-GS1A	29 Laundry Mutual 2314	Laguna Woods	1	1	437	\$290	UNKNOWN	N/A
3431916	222013-113265	396635385	TOU-GS1A	5359 Algarrobo	Laguna Woods	1	1	393	\$294	UNKNOWN	N/A
1200140	222013-148483	396623068	TOU-GS1A	3144 Via Vista	Laguna Woods	1	1	361	\$301	UNKNOWN	N/A
3431901	222013-758790	28085702	TOU-GS1A	5010 Bahia Blanca C/P	Laguna Woods	1	1	340	\$297	UNKNOWN	N/A
3431903	222013-112351	28085702	TOU-GS1A	5006 Bahia Blanca	Laguna Woods	1	1	284	\$293	UNKNOWN	N/A
1200275	222013-683585	396623068	TOU-GS1A	29 Laundry Mutual 2315	Laguna Woods	1	1	196	\$289	UNKNOWN	N/A
3605049	222013-289021	28085702	TOU-GS1A	5215 Elvira	Laguna Woods	1	1	120	\$307	UNKNOWN	N/A
1200165	222013-754856	396623068	TOU-GS1A	3183 Alta Vista	Laguna Hills	1	1	114	\$294	UNKNOWN	N/A
1747412	211010-017650	396623068	TOU-GS1A	5335 Bahia Blanca W	Laguna Woods	1	1	113	\$293	UNKNOWN	N/A
256252	222010-765617	396623068	TOU-GS1A	5108 Avenida Despacio	Laguna Woods	1	1	100	\$293	UNKNOWN	N/A
3605024	222010-836806	28085702	TOU-GS1A	3515 Bahia Blanca W	Laguna Woods	1	1	99	\$304	UNKNOWN	N/A
40728518		28085702	LS-1-ALLNITE	Various	Laguna Woods	0	0	146,343	\$50,837	UNKNOWN	N/A
23225343		28085702	DWL-A	Via Mariposa / Puerta	Laguna Woods	0	0	73,906	\$25,132	UNKNOWN	N/A
23225119		28085702	DWL-A	Tr 7074 /5719	Laguna Woods	0	0	9,504	\$3,475	UNKNOWN	N/A
23225265		28085702	DWL-A	Tr 7935 Mutual 82	Laguna Woods	0	0	4,656	\$1,509	UNKNOWN	N/A
3433290	211010-060753	396635385	TOU-GS1A	5519 Paseo Del Lago W	Laguna Woods	0	0	3,668	\$572	UNKNOWN	N/A
29107141	254000-025018	28085702	TOU-D-4	2355 Via Mariposa W Eiv	Laguna Woods	0	0	2,774	\$407	UNKNOWN	N/A
2888588	222013-114648	28085702	TOU-GS1A	24892 El Toro Rd	Laguna Woods	0	0	1,151	\$454	UNKNOWN	N/A
3886895	222013-657123	28085702	DOMESTIC	24792 Avenida Sosiega	Laguna Woods	0	0	1,031	\$145	UNKNOWN	N/A

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWH	Annual Revenue	SCE Transformer Size (Est)	SCE Transformer Capacity
3433257	222013-756267	28085702	TOU-GS1A	4020 Calle Sonora Este	Laguna Woods	0	0	937	\$426	UNKNOWN	N/A
3886893	222013-641578	28085702	DOMESTIC	24792 Avenida Sosiega	Laguna Woods	0	0	935	\$136	UNKNOWN	N/A
3431952	222013-113217	28085702	TOU-GS1A	3331 Bahia Blanca E	Laguna Woods	0	0	898	\$419	UNKNOWN	N/A
3605044	222013-112786	28085702	TOU-GS1A	3492 Monte Hermoso	Laguna Woods	0	0	862	\$414	UNKNOWN	N/A
3431958	222013-112782	396635385	TOU-GS1A	3360 Monte Hermoso	Laguna Woods	0	0	828	\$350	UNKNOWN	N/A
3431477	222013-146954	396623068	TOU-GS1A	3416 Punta Alta	Laguna Woods	0	0	818	\$315	UNKNOWN	N/A
3433286	222013-760592	396623068	TOU-GS1A	5498 Paseo Del Lago E	Laguna Woods	0	0	773	\$314	UNKNOWN	N/A
3433296	222013-760631	396635385	TOU-GS1A	5473 Paseo Del Lago W	Laguna Woods	0	0	722	\$340	UNKNOWN	N/A
3605041	222013-281142	28085702	TOU-GS1A	3495 Monte Hermoso	Laguna Woods	0	0	708	\$391	UNKNOWN	N/A
3431493	222013-146110	397302035	TOU-GS1A	3382 Punta Alta	Laguna Woods	0	0	707	\$314	UNKNOWN	N/A
3433295	222013-760629	396635385	TOU-GS1A	5472 Paseo Del Lago W	Laguna Woods	0	0	695	\$338	UNKNOWN	N/A
3886896	222013-641577	28085702	DOMESTIC	24892 Avenida Sosiega	Laguna Woods	0	0	694	\$115	UNKNOWN	N/A
3433259	222013-756266	28085702	TOU-GS1A	4018 Calle Sonora Este	Laguna Woods	0	0	681	\$387	UNKNOWN	N/A
3433256	222013-756291	28085702	TOU-GS1A	4021 Calle Sonora Este	Laguna Woods	0	0	663	\$384	UNKNOWN	N/A
3431489	222013-146108	397301706	TOU-GS1A	3380 Punta Alta	Laguna Woods	0	0	662	\$312	UNKNOWN	N/A
3431955	222013-113218	28085702	TOU-GS1A	3326 Bahia Blanca E	Laguna Woods	0	0	654	\$383	UNKNOWN	N/A
3431494	222013-146109	397302076	TOU-GS1A	3383 Punta Alta	Laguna Woods	0	0	651	\$312	UNKNOWN	N/A
3431945	222013-112682	396635385	TOU-GS1A	3358 Monte Hermoso	Laguna Woods	0	0	650	\$335	UNKNOWN	N/A
3431947	222013-112683	396635385	TOU-GS1A	3356 Monte Hermoso	Laguna Woods	0	0	650	\$336	UNKNOWN	N/A
3431956	222013-112659	396635385	TOU-GS1A	3362 Monte Hermoso	Laguna Woods	0	0	648	\$337	UNKNOWN	N/A
3605039	222013-281143	28085702	TOU-GS1A	3497 Monte Hermoso	Laguna Woods	0	0	641	\$381	UNKNOWN	N/A
3433268	222013-756312	28085702	TOU-GS1A	4016 Calle Sonora Este	Laguna Woods	0	0	640	\$381	UNKNOWN	N/A
3431478	222013-146955	396623068	TOU-GS1A	3415 Punta Alta	Laguna Woods	0	0	628	\$309	UNKNOWN	N/A
3433273	222013-760540	396635385	TOU-GS1A	5488 Paseo Del Lago W	Laguna Woods	0	0	627	\$334	UNKNOWN	N/A
3433285	222013-760541	28085702	TOU-GS1A	5497 Paseo Del Lago E	Laguna Woods	0	0	626	\$379	UNKNOWN	N/A
3431481	222013-116239	396618035	TOU-GS1A	3368 Punta Alta	Laguna Woods	0	0	624	\$311	UNKNOWN	N/A
1200103	222013-110519	396623068	TOU-GS1A	3129 Via Serena N	Laguna Woods	0	0	623	\$309	UNKNOWN	N/A
3433258	222013-756265	28085702	TOU-GS1A	4019 Calle Sonora Este	Laguna Woods	0	0	621	\$378	UNKNOWN	N/A
3605042	222013-281141	28085702	TOU-GS1A	3494 Monte Hermoso	Laguna Woods	0	0	620	\$378	UNKNOWN	N/A
3431957	222013-112656	396635385	TOU-GS1A	3361 Monte Hermoso	Laguna Woods	0	0	617	\$333	UNKNOWN	N/A
3431476	222013-146952	396623068	TOU-GS1A	3417 Punta Alta	Laguna Woods	0	0	608	\$309	UNKNOWN	N/A
3431482	222013-116236	396618654	TOU-GS1A	3369 Punta Alta	Laguna Woods	0	0	603	\$310	UNKNOWN	N/A
3431492	222013-111443	397301979	TOU-GS1A	3397 Punta Alta	Laguna Woods	0	0	599	\$310	UNKNOWN	N/A
3433272	222013-760607	396635385	TOU-GS1A	5487 Paseo Del Lago W	Laguna Woods	0	0	598	\$331	UNKNOWN	N/A
3433283	222010-672828	396635385	TOU-GS1A	5506 Paseo Del Lago W	Laguna Woods	0	0	586	\$332	UNKNOWN	N/A
3433275	222013-760542	396635385	TOU-GS1A	5490 Paseo Del Lago W	Laguna Woods	0	0	574	\$330	UNKNOWN	N/A
3502014	222013-741874	396623068	TOU-GS1A	3298 Via Carrizo	Laguna Woods	0	0	498	\$305	UNKNOWN	N/A
3502012	222013-740552	28085702	TOU-GS1A	3310 Via Carrizo	Laguna Woods	0	0	461	\$355	UNKNOWN	N/A
3431908	222013-113243	28085702	TOU-GS1A	5350 Algarrobo	Laguna Woods	0	0	437	\$294	UNKNOWN	N/A
3501985	222013-147048	396635385	TOU-GS1A	3252 San Amadeo	Laguna Woods	0	0	421	\$320	UNKNOWN	N/A
3431894	222013-289282	28085702	TOU-GS1A	5323 Bahia Blanca W	Laguna Woods	0	0	417	\$295	UNKNOWN	N/A
3431897	222013-758789	28085702	TOU-GS1A	5326 Bahia Blanca W	Laguna Woods	0	0	415	\$294	UNKNOWN	N/A
3502003	222013-147026	28085702	TOU-GS1A	3277 San Amadeo	Laguna Woods	0	0	410	\$348	UNKNOWN	N/A
3431912	222013-114488	28085702	TOU-GS1A	5354 Algarrobo	Laguna Woods	0	0	406	\$294	UNKNOWN	N/A
3501982	222013-145592	396635385	TOU-GS1A	3249 San Amadeo	Laguna Woods	0	0	393	\$318	UNKNOWN	N/A
1200123	222010-676609	396623068	TOU-GS1A	3170 Via Vista	Laguna Woods	0	0	384	\$301	UNKNOWN	N/A
3501981	222012-451074	396635385	TOU-GS1A	3248 San Amadeo	Laguna Woods	0	0	374	\$316	UNKNOWN	N/A
3431893	222013-279811	28085702	TOU-GS1A	5322 Bahia Blanca W	Laguna Woods	0	0	373	\$294	UNKNOWN	N/A
3502009	222013-741848	28085702	TOU-GS1A	3307 Via Carrizo	Laguna Woods	0	0	370	\$342	UNKNOWN	N/A
3502007	222013-737770	28085702	TOU-GS1A	3281 San Amadeo	Laguna Woods	0	0	369	\$342	UNKNOWN	N/A
1200078	222013-110696	396623068	TOU-GS1A	3108 Via Serena S	Laguna Woods	0	0	365	\$300	UNKNOWN	N/A
3502022	222013-740534	28085702	TOU-GS1A	3305 Via Carrizo	Laguna Woods	0	0	360	\$341	UNKNOWN	N/A
3431895	222013-113194	28085702	TOU-GS1A	5324 Bahia Blanca W	Laguna Woods	0	0	355	\$293	UNKNOWN	N/A

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWH	Annual Revenue	SCE Transformer Size (Est)	SCE Transformer Capacity
3431910	222013-114513	28085702	TOU-GS1A	5352 Algarrobo	Laguna Woods	0	0	350	\$293	UNKNOWN	N/A
3431914	222013-114490	396635385	TOU-GS1A	5356 Algarrobo	Laguna Woods	0	0	349	\$294	UNKNOWN	N/A
1200121	222013-146000	396623068	TOU-GS1A	3169 Via Vista	Laguna Hills	0	0	347	\$300	UNKNOWN	N/A
1200074	222013-110697	396623068	TOU-GS1A	3107 Via Serena S	Laguna Woods	0	0	344	\$300	UNKNOWN	N/A
3431905	222010-772313	28085702	TOU-GS1A	5347 Algarrobo	Laguna Woods	0	0	339	\$293	UNKNOWN	N/A
3431896	222013-289280	28085702	TOU-GS1A	5325 Bahia Blanca W	Laguna Woods	0	0	338	\$288	UNKNOWN	N/A
3501986	222013-147051	396635385	TOU-GS1A	3253 San Amadeo	Laguna Woods	0	0	338	\$313	UNKNOWN	N/A
3502021	222013-740535	28085702	TOU-GS1A	3304 Via Carrizo	Laguna Woods	0	0	338	\$338	UNKNOWN	N/A
3502013	222013-741875	28085702	TOU-GS1A	3311 Via Carrizo	Laguna Woods	0	0	336	\$337	UNKNOWN	N/A
3501983	222013-147049	396635385	TOU-GS1A	3250 San Amadeo	Laguna Woods	0	0	334	\$313	UNKNOWN	N/A
3501997	222013-147024	28085702	TOU-GS1A	3275 San Amadeo	Laguna Woods	0	0	333	\$337	UNKNOWN	N/A
3431915	222013-729966	396635385	TOU-GS1A	5358 Algarrobo	Laguna Woods	0	0	330	\$293	UNKNOWN	N/A
3502008	222013-741850	28085702	TOU-GS1A	3306 Via Carrizo	Laguna Woods	0	0	329	\$336	UNKNOWN	N/A
1200102	222013-110516	396623068	TOU-GS1A	3128 Via Serena N	Laguna Woods	0	0	328	\$300	UNKNOWN	N/A
1200119	222013-146003	396623068	TOU-GS1A	3167 Via Vista	Laguna Hills	0	0	326	\$299	UNKNOWN	N/A
3502006	222013-737747	28085702	TOU-GS1A	3280 San Amadeo	Laguna Woods	0	0	325	\$336	UNKNOWN	N/A
3431898	222013-289281	28085702	TOU-GS1A	5327 Bahia Blanca W	Laguna Woods	0	0	318	\$293	UNKNOWN	N/A
3502002	222013-147025	28085702	TOU-GS1A	3276 San Amadeo	Laguna Woods	0	0	318	\$335	UNKNOWN	N/A
1200080	222013-110720	396623068	TOU-GS1A	3109 Via Serena S	Laguna Woods	0	0	313	\$299	UNKNOWN	N/A
3502010	222013-740555	28085702	TOU-GS1A	3308 Via Carrizo	Laguna Woods	0	0	313	\$334	UNKNOWN	N/A
3502018	222013-741873	28085702	TOU-GS1A	3302 Via Carrizo	Laguna Woods	0	0	312	\$334	UNKNOWN	N/A
1200101	222013-110560	396623068	TOU-GS1A	3127 Via Serena N	Laguna Woods	0	0	311	\$298	UNKNOWN	N/A
1200082	222013-110561	396623068	TOU-GS1A	3124 Via Serena N	Laguna Woods	0	0	310	\$299	UNKNOWN	N/A
3502004	222013-737752	28085702	TOU-GS1A	3278 San Amadeo	Laguna Woods	0	0	308	\$333	UNKNOWN	N/A
1200189	222013-752352	396623068	TOU-GS1A	3231 Via Carrizo	Laguna Woods	0	0	307	\$299	UNKNOWN	N/A
3431900	222013-289283	28085702	TOU-GS1A	5331 Bahia Blanca W	Laguna Woods	0	0	307	\$293	UNKNOWN	N/A
1200124	222010-670198	396623068	TOU-GS1A	3143 Via Vista	Laguna Hills	0	0	306	\$299	UNKNOWN	N/A
3431911	222013-115452	28085702	TOU-GS1A	5353 Algarrobo	Laguna Woods	0	0	306	\$293	UNKNOWN	N/A
3431913	222013-114491	396635385	TOU-GS1A	5355 Algarrobo	Laguna Woods	0	0	303	\$293	UNKNOWN	N/A
3431906	222013-114489	396623068	TOU-GS1A	5348 Algarrobo	Laguna Woods	0	0	302	\$292	UNKNOWN	N/A
3431907	222013-113242	28085702	TOU-GS1A	5349 Algarrobo	Laguna Woods	0	0	302	\$293	UNKNOWN	N/A
1200059	222013-110745	396623068	TOU-GS1A	3105 Via Serena S	Laguna Woods	0	0	298	\$299	UNKNOWN	N/A
2531479	222013-115454	396623068	TOU-GS1A	5357 Algarrobo	Laguna Woods	0	0	297	\$300	UNKNOWN	N/A
3431899	222013-279803	28085702	TOU-GS1A	5330 Bahia Blanca W	Laguna Woods	0	0	297	\$293	UNKNOWN	N/A
3501984	222013-147050	396635385	TOU-GS1A	3251 San Amadeo	Laguna Woods	0	0	295	\$310	UNKNOWN	N/A
1200141	222013-148480	396623068	TOU-GS1A	3145 Via Vista	Laguna Woods	0	0	293	\$299	UNKNOWN	N/A
3431909	222013-113240	28085702	TOU-GS1A	5351 Algarrobo	Laguna Woods	0	0	290	\$293	UNKNOWN	N/A
1200061	222013-110744	396623068	TOU-GS1A	3106 Via Serena S	Laguna Woods	0	0	289	\$299	UNKNOWN	N/A
1200100	222013-110563	396623068	TOU-GS1A	3125 Via Serena N	Laguna Woods	0	0	288	\$298	UNKNOWN	N/A
3502005	222013-737744	28085702	TOU-GS1A	3279 San Amadeo	Laguna Woods	0	0	286	\$330	UNKNOWN	N/A
3502011	222013-740556	28085702	TOU-GS1A	3309 Via Carrizo	Laguna Woods	0	0	278	\$329	UNKNOWN	N/A
3605020	222013-115477	28085702	TOU-GS1A	5595 Avenida Sosiega W	Laguna Woods	0	0	246	\$326	UNKNOWN	N/A
1730324	222010-803133	396623068	TOU-GS1A	5582 Via Dicha	Laguna Woods	0	0	197	\$296	UNKNOWN	N/A
1200307	222013-683570	28085702	TOU-GS1A	30 Laundry Mutual 2339	Laguna Woods	0	0	196	\$318	UNKNOWN	N/A
3605048	222013-112787	28085702	TOU-GS1A	5041 Avenida Del Sol	Laguna Woods	0	0	178	\$316	UNKNOWN	N/A
3605021	222010-800330	28085702	TOU-GS1A	5572 Luz Del Sol	Laguna Woods	0	0	174	\$315	UNKNOWN	N/A
1369400	222013-149173	396623068	TOU-GS1A	5577 Luz Del Sol	Laguna Woods	0	0	164	\$294	UNKNOWN	N/A
1730348	222010-771053	396623068	TOU-GS1A	5558 Via Portora	Laguna Woods	0	0	157	\$294	UNKNOWN	N/A
3605022	222013-281119	28085702	TOU-GS1A	5598 Vista Del Mando S	Laguna Woods	0	0	157	\$313	UNKNOWN	N/A
1730347	222013-116803	396623068	TOU-GS1A	5565 Via Portora	Laguna Woods	0	0	156	\$294	UNKNOWN	N/A
1730328	222013-145539	396623068	TOU-GS1A	5555 Rayo Del Sol	Laguna Woods	0	0	152	\$294	UNKNOWN	N/A
347891	222013-145606	396623068	TOU-GS1A	5551 Rayo Del Sol	Laguna Woods	0	0	143	\$294	UNKNOWN	N/A
1200122	222013-754858	396623068	TOU-GS1A	3084 Via Vista Cp	Laguna Woods	0	0	139	\$294	UNKNOWN	N/A

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWH	Annual Revenue	SCE Transformer Size (Est)	SCE Transformer Capacity
3605047	222013-289022	28085702	TOU-GS1A	5279 Pina	Laguna Woods	0	0	138	\$310	UNKNOWN	N/A
665236	222010-800297	396623068	TOU-GS1A	5586 Via Dicha	Laguna Woods	0	0	135	\$294	UNKNOWN	N/A
1730325	222013-114649	396623068	TOU-GS1A	5592 Avenida Sosiega W	Laguna Woods	0	0	135	\$294	UNKNOWN	N/A
3605025	211010-043889	28085702	TOU-GS1A	3504 Bahia Blanca W	Laguna Woods	0	0	129	\$309	UNKNOWN	N/A
1467874	222013-599282	396623068	TOU-GS1A	24892 Avenida Sosiega	Laguna Woods	0	0	123	\$294	UNKNOWN	N/A
3431519	222013-674847	28085702	TOU-GS1A	3489 Calle Azul	Laguna Woods	0	0	123	\$291	UNKNOWN	N/A
665238	222013-145609	396623068	TOU-GS1A	5545 Rayo Del Sol	Laguna Woods	0	0	122	\$294	UNKNOWN	N/A
256224	222013-116415	396635385	TOU-GS1A	5286 Pina	Laguna Woods	0	0	118	\$293	UNKNOWN	N/A
256229	222013-600659	396635385	TOU-GS1A	5018 Jardin	Laguna Woods	0	0	118	\$293	UNKNOWN	N/A
516156	222013-821706	396623068	TOU-GS1A	5394 Paseo Del Lago W	Laguna Woods	0	0	117	\$293	UNKNOWN	N/A
1270553	222013-754862	396623068	TOU-GS1A	24021 Via Vista	Laguna Woods	0	0	117	\$293	UNKNOWN	N/A
256227	222010-768917	396635385	TOU-GS1A	5315 Cantante	Laguna Woods	0	0	116	\$293	UNKNOWN	N/A
516155	222013-740702	28085702	TOU-GS1A	5476 Paseo Del Lago E	Laguna Woods	0	0	116	\$307	UNKNOWN	N/A
516157	211010-017385	396623068	TOU-GS1A	5377 Avenida Sosiega	Laguna Woods	0	0	116	\$293	UNKNOWN	N/A
3605023	222013-743807	28085702	TOU-GS1A	3522 Bahia Blanca W	Laguna Woods	0	0	115	\$306	UNKNOWN	N/A
516145	222013-146714	396623068	TOU-GS1A	5434 Via Carrizo	Laguna Woods	0	0	114	\$293	UNKNOWN	N/A
250410	222013-111431	396635385	TOU-GS1A	3376 Punta Alta	Laguna Woods	0	0	113	\$293	UNKNOWN	N/A
583466	222013-760628	28085702	TOU-GS1A	5468 Paseo Del Lago E	Laguna Woods	0	0	113	\$306	UNKNOWN	N/A
256228	222010-700547	396635385	TOU-GS1A	5050 Avenida Del Sol	Laguna Woods	0	0	112	\$293	UNKNOWN	N/A
1200186	222013-115426	396623068	TOU-GS1A	24352 Via Carrizo	Laguna Woods	0	0	112	\$293	UNKNOWN	N/A
1747417	222013-113266	396623068	TOU-GS1A	5367 Algarrobo	Laguna Woods	0	0	112	\$293	UNKNOWN	N/A
3433270	222013-821707	396635385	TOU-GS1A	5398 Via Carrizo	Laguna Woods	0	0	112	\$298	UNKNOWN	N/A
256244	222010-765646	396635385	TOU-GS1A	5143 Miembro	Laguna Woods	0	0	111	\$293	UNKNOWN	N/A
530307	222013-743938	396623068	TOU-GS1A	3460 Bahia Blanca W	Laguna Woods	0	0	111	\$293	UNKNOWN	N/A
1730326	222013-145631	396623068	TOU-GS1A	3531 Monte Hermoso	Laguna Woods	0	0	111	\$293	UNKNOWN	N/A
256232	222010-265429	396635385	TOU-GS1A	5160 Belmez	Laguna Woods	0	0	110	\$293	UNKNOWN	N/A
1200145	222013-754859	396623068	TOU-GS1A	22441 Alta Vista	Laguna Hills	0	0	110	\$293	UNKNOWN	N/A
256238	222010-768398	396635385	TOU-GS1A	5236 Elvira	Laguna Woods	0	0	109	\$293	UNKNOWN	N/A
516154	222010-672144	396623068	TOU-GS1A	5502 Paseo Del Lago W	Laguna Woods	0	0	109	\$293	UNKNOWN	N/A
530298	222013-743961	396623068	TOU-GS1A	3389 Punta Alta	Laguna Woods	0	0	109	\$293	UNKNOWN	N/A
530308	222013-743937	396623068	TOU-GS1A	3469 Bahia Blanca W	Laguna Woods	0	0	108	\$293	UNKNOWN	N/A
256235	222013-911491	396635385	TOU-GS1A	5187 Duenas	Laguna Woods	0	0	107	\$293	UNKNOWN	N/A
1200187	222013-752350	396623068	TOU-GS1A	3222 Via Carrizo	Laguna Hills	0	0	107	\$293	UNKNOWN	N/A
256225	222014-029285	396635385	TOU-GS1A	5305 Cantante	Laguna Woods	0	0	106	\$293	UNKNOWN	N/A
349428	222013-114116	396623068	TOU-GS1A	5031 Avenida Del Sol	Laguna Woods	0	0	106	\$293	UNKNOWN	N/A
256234	222013-289023	396635385	TOU-GS1A	5177 Calzado	Laguna Woods	0	0	105	\$293	UNKNOWN	N/A
256245	222010-765670	396635385	TOU-GS1A	5111 Miembro	Laguna Woods	0	0	105	\$293	UNKNOWN	N/A
256251	222010-704432	396623068	TOU-GS1A	5098 Avenida Del Sol	Laguna Woods	0	0	105	\$293	UNKNOWN	N/A
330047	222013-684422	396623068	TOU-GS1A	5427 Paseo Del Lago	Laguna Woods	0	0	105	\$293	UNKNOWN	N/A
330043	222013-911489	396623068	TOU-GS1A	5451 Calle Pico	Laguna Woods	0	0	104	\$293	UNKNOWN	N/A
530305	222013-674845	396623068	TOU-GS1A	3456 Bahia Blanca W	Laguna Woods	0	0	104	\$293	UNKNOWN	N/A
3433280	211010-017354	396635385	TOU-GS1A	5511 Paseo Del Lago W	Laguna Woods	0	0	104	\$297	UNKNOWN	N/A
256240	222010-768399	396635385	TOU-GS1A	5207 Avenida Despacio	Laguna Woods	0	0	103	\$293	UNKNOWN	N/A
516147	222013-116926	396623068	TOU-GS1A	5404 Via Carrizo	Laguna Woods	0	0	103	\$293	UNKNOWN	N/A
1200190	222013-752355	396623068	TOU-GS1A	3239 San Amadeo	Laguna Woods	0	0	103	\$293	UNKNOWN	N/A
1747416	222013-113267	396623068	TOU-GS1A	5344 Bahia Blanca W	Laguna Woods	0	0	103	\$293	UNKNOWN	N/A
256233	222013-289020	396635385	TOU-GS1A	5167 Belmez	Laguna Woods	0	0	102	\$293	UNKNOWN	N/A
256247	222010-704388	28085702	TOU-GS1A	5133 Brazo	Laguna Woods	0	0	102	\$293	UNKNOWN	N/A
516149	222014-113308	396623068	TOU-GS1A	24292 Paseo Del Lago	Laguna Woods	0	0	102	\$293	UNKNOWN	N/A
530300	222010-770518	396623068	TOU-GS1A	3410 Calle Azul	Laguna Woods	0	0	102	\$293	UNKNOWN	N/A
1200146	222014-038393	396623068	TOU-GS1A	22451 Alta Vista	Laguna Woods	0	0	102	\$293	UNKNOWN	N/A
256250	222010-766223	396623068	TOU-GS1A	5074 Tero	Laguna Woods	0	0	101	\$293	UNKNOWN	N/A
256231	222013-114117	396635385	TOU-GS1A	23892 Duverney	Laguna Woods	0	0	100	\$293	UNKNOWN	N/A

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWH	Annual Revenue	SCE Transformer Size (Est)	SCE Transformer Capacity
288803	222013-596996	396623068	TOU-GS1A	3178 Via Buena Vis	Laguna Woods	0	0	100	\$293	UNKNOWN	N/A
541428	222013-113195	396623068	TOU-GS1A	5320 Bahia Blanca W	Laguna Woods	0	0	100	\$293	UNKNOWN	N/A
1747413	222013-904722	396623068	TOU-GS1A	5338 Bahia Blanca W	Laguna Woods	0	0	100	\$293	UNKNOWN	N/A
256243	222014-022256	396635385	TOU-GS1A	5255 Duenas	Laguna Woods	0	0	99	\$293	UNKNOWN	N/A
275577	222013-737771	396623068	TOU-GS1A	3296 San Amadeo	Laguna Hills	0	0	99	\$293	UNKNOWN	N/A
371125	222013-115427	396623068	TOU-GS1A	3207 Via Buena Vis	Laguna Hills	0	0	99	\$293	UNKNOWN	N/A
665237	222010-798990	396623068	TOU-GS1A	3520 Bahia Blanca W	Laguna Woods	0	0	99	\$293	UNKNOWN	N/A
516144	222013-911488	396623068	TOU-GS1A	5444 Alta Vista	Laguna Woods	0	0	98	\$293	UNKNOWN	N/A
516146	222013-116927	396623068	TOU-GS1A	5413 Via Carrizo	Laguna Woods	0	0	98	\$293	UNKNOWN	N/A
852444	222013-674832	396623068	TOU-GS1A	3480 Bahia Blanca W	Laguna Woods	0	0	98	\$293	UNKNOWN	N/A
1352340	222013-741849	396623068	TOU-GS1A	3325 Via Carrizo	Laguna Woods	0	0	98	\$293	UNKNOWN	N/A
583465	222013-910076	28085702	TOU-GS1A	5463 Paseo Del Lago E	Laguna Woods	0	0	97	\$303	UNKNOWN	N/A
583467	222013-760595	28085702	TOU-GS1A	5495 Paseo Del Lago E	Laguna Woods	0	0	97	\$303	UNKNOWN	N/A
1200144	222014-022259	396623068	TOU-GS1A	3163 Alta Vista	Laguna Woods	0	0	97	\$293	UNKNOWN	N/A
1270552	222013-754857	396623068	TOU-GS1A	24021 Via Vista	Laguna Hills	0	0	97	\$293	UNKNOWN	N/A
256241	222010-768885	396635385	TOU-GS1A	5245 Duenas	Laguna Woods	0	0	96	\$292	UNKNOWN	N/A
256246	222010-766220	28085702	TOU-GS1A	5123 Brazo	Laguna Woods	0	0	96	\$292	UNKNOWN	N/A
1200166	222013-752349	396623068	TOU-GS1A	3196 Via Buena Vis	Laguna Hills	0	0	96	\$292	UNKNOWN	N/A
1200188	222013-752351	396623068	TOU-GS1A	3226 Via Carrizo	Laguna Hills	0	0	96	\$292	UNKNOWN	N/A
1369402	222013-887960	396623068	TOU-GS1A	24792 Avenida Sosiega	Laguna Woods	0	0	96	\$292	UNKNOWN	N/A
1604638	222013-145619	396623068	TOU-GS1A	3266 San Amadeo	Laguna Woods	0	0	96	\$292	UNKNOWN	N/A
1730327	222012-902740	396623068	TOU-GS1A	24892 Avenida Sosiega	Laguna Woods	0	0	96	\$292	UNKNOWN	N/A
1844714	222013-684423	396623068	TOU-GS1A	5389 Paseo Del Lago W	Laguna Woods	0	0	96	\$292	UNKNOWN	N/A
3501977	211010-018886	396635385	TOU-GS1A	3261 San Amadeo	Laguna Woods	0	0	96	\$297	UNKNOWN	N/A
256237	211010-061047	396635385	TOU-GS1A	5201 Avenida Despacio	Laguna Woods	0	0	93	\$292	UNKNOWN	N/A
275574	222013-737768	396623068	TOU-GS1A	3285 San Amadeo	Laguna Woods	0	0	93	\$292	UNKNOWN	N/A
1730344	222013-115478	396623068	TOU-GS1A	5594 Avenida Sosiega W	Laguna Woods	0	0	93	\$291	UNKNOWN	N/A
256223	222013-600657	396635385	TOU-GS1A	5229 Moya	Laguna Woods	0	0	91	\$292	UNKNOWN	N/A
256226	222013-161122	396635385	TOU-GS1A	5308 Cantante	Laguna Woods	0	0	91	\$292	UNKNOWN	N/A
348734	222013-737722	396623068	TOU-GS1A	3313 San Amadeo	Laguna Woods	0	0	91	\$292	UNKNOWN	N/A
516158	222010-502152	396623068	TOU-GS1A	5381 Avenida Sosiega	Laguna Woods	0	0	91	\$292	UNKNOWN	N/A
1200168	222013-115424	396623068	TOU-GS1A	3202 Via Buena Vis	Laguna Hills	0	0	91	\$292	UNKNOWN	N/A
1270554	222013-599410	396623068	TOU-GS1A	3157 Alta Vista	Laguna Woods	0	0	91	\$292	UNKNOWN	N/A
256230	222013-114119	396635385	TOU-GS1A	23921 Duverney	Laguna Woods	0	0	89	\$292	UNKNOWN	N/A
1183230	211010-043895	396623068	TOU-GS1A	5086 Ovalo	Laguna Woods	0	0	89	\$292	UNKNOWN	N/A
1200167	222013-887963	396623068	TOU-GS1A	3200 Via Buena Vis	Laguna Hills	0	0	89	\$292	UNKNOWN	N/A
256236	222010-770732	396635385	TOU-GS1A	5195 Duenas	Laguna Woods	0	0	88	\$292	UNKNOWN	N/A
256239	222010-766246	396635385	TOU-GS1A	5272 Avenida Del Sol	Laguna Woods	0	0	88	\$292	UNKNOWN	N/A
256242	211010-061046	396635385	TOU-GS1A	5265 Avenida Del Sol	Laguna Woods	0	0	88	\$292	UNKNOWN	N/A
256249	222010-704391	396623068	TOU-GS1A	5066 Avenida Del Sol	Laguna Woods	0	0	88	\$292	UNKNOWN	N/A
530303	222013-111441	396623068	TOU-GS1A	3431 Bahia Blanca W	Laguna Woods	0	0	88	\$292	UNKNOWN	N/A
1200164	211010-016712	396623068	TOU-GS1A	3187 Via Buena Vis	Laguna Hills	0	0	85	\$292	UNKNOWN	N/A
3431487	222010-770516	397301540	TOU-GS1A	3405 Calle Azul	Laguna Woods	0	0	85	\$293	UNKNOWN	N/A
349427	211010-067991	396623068	TOU-GS1A	5293 Avenida Del Sol	Laguna Woods	0	0	84	\$292	UNKNOWN	N/A
516151	222013-760593	396623068	TOU-GS1A	5509 Paseo Del Lago W	Laguna Woods	0	0	83	\$292	UNKNOWN	N/A
1747418	222013-112322	28085702	TOU-GS1A	3346 Bahia Blanca E	Laguna Woods	0	0	83	\$302	UNKNOWN	N/A
583464	211010-013050	396623068	TOU-GS1A	5502 Paseo Del Lago W	Laguna Woods	0	0	82	\$292	UNKNOWN	N/A
1199807	222013-145894	396623068	TOU-GS1A	5564 Via Portora	Laguna Woods	0	0	69	\$291	UNKNOWN	N/A
1730340	222010-803121	396623068	TOU-GS1A	5581 Via Dicha	Laguna Woods	0	0	64	\$291	UNKNOWN	N/A
1730345	222013-118416	396623068	TOU-GS1A	5597 Vista Del Mando S	Laguna Woods	0	0	64	\$291	UNKNOWN	N/A
1730342	222013-118418	396623068	TOU-GS1A	5590 Avenida Sosiega W	Laguna Woods	0	0	63	\$291	UNKNOWN	N/A
1199806	222013-145895	396623068	TOU-GS1A	5566 Via Portora	Laguna Woods	0	0	62	\$291	UNKNOWN	N/A
1199831	222010-800303	396623068	TOU-GS1A	5563 Via Portora	Laguna Woods	0	0	62	\$291	UNKNOWN	N/A

Serv Acct Number	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Annual Max kW	Annual Max KVA	Annual KWH	Annual Revenue	SCE Transformer Size (Est)	SCE Transformer Capacity
1730334	222013-149174	396623068	TOU-GS1A	5578 Luz Del Sol	Laguna Woods	0	0	61	\$291	UNKNOWN	N/A
1199801	222013-145537	396623068	TOU-GS1A	5553 Rayo Del Sol	Laguna Woods	0	0	60	\$291	UNKNOWN	N/A
1199854	222010-800267	396623068	TOU-GS1A	5593 Avenida Sosiega W	Laguna Woods	0	0	59	\$291	UNKNOWN	N/A
1730333	222013-149175	396623068	TOU-GS1A	5576 Luz Del Sol	Laguna Woods	0	0	58	\$291	UNKNOWN	N/A
1730346	222013-145892	396623068	TOU-GS1A	5562 Via Portora	Laguna Woods	0	0	58	\$291	UNKNOWN	N/A
1730335	222010-800293	396623068	TOU-GS1A	5588 Via Dicha	Laguna Woods	0	0	57	\$291	UNKNOWN	N/A
665240	222013-118419	396623068	TOU-GS1A	5596 Vista Del Mando S	Laguna Woods	0	0	55	\$291	UNKNOWN	N/A
1199781	222013-145611	396623068	TOU-GS1A	5548 Rayo Del Sol	Laguna Woods	0	0	54	\$290	UNKNOWN	N/A
1730331	222010-800342	396623068	TOU-GS1A	5574 Luz Del Sol	Laguna Woods	0	0	54	\$291	UNKNOWN	N/A
347892	222013-149172	396623068	TOU-GS1A	5579 Luz Del Sol	Laguna Woods	0	0	52	\$291	UNKNOWN	N/A
1199784	222013-145604	396623068	TOU-GS1A	5549 Rayo Del Sol	Laguna Woods	0	0	52	\$291	UNKNOWN	N/A
1730332	222010-800322	396623068	TOU-GS1A	5575 Luz Del Sol	Laguna Woods	0	0	52	\$291	UNKNOWN	N/A
1730341	222013-118417	396623068	TOU-GS1A	5589 Avenida Sosiega W	Laguna Woods	0	0	52	\$291	UNKNOWN	N/A
1199834	222010-771056	396623068	TOU-GS1A	5559 Via Portora	Laguna Woods	0	0	51	\$291	UNKNOWN	N/A
1730337	222014-038569	396623068	TOU-GS1A	5585 Via Dicha	Laguna Woods	0	0	50	\$291	UNKNOWN	N/A
1730338	222010-803084	396623068	TOU-GS1A	5584 Via Dicha	Laguna Woods	0	0	49	\$291	UNKNOWN	N/A
1730343	222010-794994	396623068	TOU-GS1A	5591 Avenida Sosiega W	Laguna Woods	0	0	49	\$291	UNKNOWN	N/A
1199803	222013-145538	396623068	TOU-GS1A	5556 Rayo Del Sol	Laguna Woods	0	0	48	\$291	UNKNOWN	N/A
1199835	222013-149446	396623068	TOU-GS1A	5571 Luz Del Sol	Laguna Woods	0	0	48	\$291	UNKNOWN	N/A
1199778	222013-145608	396623068	TOU-GS1A	5547 Rayo Del Sol	Laguna Woods	0	0	47	\$291	UNKNOWN	N/A
1199788	222013-145605	396623068	TOU-GS1A	5550 Rayo Del Sol	Laguna Woods	0	0	47	\$291	UNKNOWN	N/A
1199832	222010-771010	396623068	TOU-GS1A	5561 Via Portora	Laguna Woods	0	0	47	\$291	UNKNOWN	N/A
256218	222010-800272	396635385	TOU-GS1A	5573 Luz Del Sol	Laguna Woods	0	0	43	\$290	UNKNOWN	N/A
3265231	211010-006139	396623068	TOU-GS1A	3059 Via Serena S	Laguna Woods	0	0	39	\$290	UNKNOWN	N/A
348508	222013-112348	396623068	TOU-GS1A	5003 Bahia Blanca	Laguna Woods	0	0	37	\$290	UNKNOWN	N/A
1199836	222010-802250	396623068	TOU-GS1A	5580 Via Dicha	Laguna Woods	0	0	36	\$290	UNKNOWN	N/A
1730330	222010-801959	396623068	TOU-GS1A	5570 Luz Del Sol	Laguna Woods	0	0	35	\$290	UNKNOWN	N/A
256217	222010-795026	396623068	TOU-GS1A	5557 Via Portora	Laguna Woods	0	0	34	\$291	UNKNOWN	N/A
1730336	222010-800301	396623068	TOU-GS1A	5587 Via Dicha	Laguna Woods	0	0	34	\$290	UNKNOWN	N/A
1199833	222010-771030	396623068	TOU-GS1A	5560 Via Portora	Laguna Woods	0	0	31	\$290	UNKNOWN	N/A
1730339	222010-800331	396623068	TOU-GS1A	5583 Via Dicha	Laguna Woods	0	0	17	\$290	UNKNOWN	N/A
1199805	222013-145630	396623068	TOU-GS1A	5567 Via Portora	Laguna Woods	0	0	14	\$290	UNKNOWN	N/A
1199791	222013-145607	396623068	TOU-GS1A	5552 Rayo Del Sol	Laguna Woods	0	0	13	\$290	UNKNOWN	N/A
1199802	222013-145536	396623068	TOU-GS1A	5554 Rayo Del Sol	Laguna Woods	0	0	6	\$289	UNKNOWN	N/A
1199804	222013-145629	396623068	TOU-GS1A	5568 Via Portora	Laguna Woods	0	0	5	\$290	UNKNOWN	N/A
1730329	222013-149447	396623068	TOU-GS1A	5569 Luz Del Sol	Laguna Woods	0	0	4	\$289	UNKNOWN	N/A
871440	222013-145610	396623068	TOU-GS1A	5546 Rayo Del Sol	Laguna Woods	0	0	0	\$289	UNKNOWN	N/A

Appendix D – SCE Correspondence Timeline

Laguna Woods Data Request, Timeline, and Issues

- August 22nd, 2018 – Requested the following in an email from Christian Torres
 - “...we're looking for the following attributes ideally in spreadsheet form:
 - Physical location
 - Capacities
 - Approximate latitude/longitude
 - Accounts that correspond to them for meters on Laguna Woods Village customer accounts (common areas).”
- August 23rd – Christian Torres introduces TEC to Loren Palmer to support
 - Loren confirmed that we are unable to share specific information on SCE infrastructure and SCE needs to understand what the end goal for this project is. Does LWV plan to increase load?
- Sept. 12th – TEC follows up with SCE to understand denial request for information and whether or not SCE is able to provide *any* information into what parts of the electric infrastructure the utility owns vs what Laguna Woods is responsible for? At this time, SCE is supposedly working on part of the data request.
- November 5th, 2018 – After receiving LWV customer meter specific data, RH follows-up with Loren Palmer at SCE. Meter data received, but no transformer data that was in original request. Rebecca shares an example of another utility's GIS map (redacted), for demonstration and requests a GIS distribution map from SCE.
- November 7th – Jad Farrah, Distribution Engineer, from SCE calls Rebecca and requests meter data for the LWV accounts to potentially add transformer data to. He is still following up internally to see what they can and cannot provide
- November 7th – Rebecca provides SCE with the meter information they have on file for LWV customers
- November 8th: Jad shares that the info has been shared with his Field Engineering team and he does not have access to any GIS information
- November 14th – Rebecca follows up with SCE to request updates on expected data
- November 19th - Rebecca follows up with SCE to request updates
- Nov 27th - Rebecca follows up with SCE to request updates
- December 12 – Rebecca emails Jad email string highlighting the original data request chain showing request has been ongoing for 6 months
- December – Jad/SCE is supposedly working on the data request
- January 13th – Rebecca follows up with SCE to request updates
- January 14th – SCE provides an invoice for the data they were able to collect.
- January 21 – TEC reiterates original data request and what they assumed SCE would be sharing before paying invoice

- GPS coordinates for the transformers -“We’ll need to know where the transformers are located if they are going to serve additional loads, such as the EV chargers.
- Max load of each meter (kVA) - This will allow our team to evaluate if the transformers are maxed out, or if they could handle some added load.”
- January 23rd – SCE will look into how much the invoice will change for the additional requested data
- Jan 30th – SCE shares their team is trying to get the data
- February 6 – TEC follows-up with SCE for the data
- February 6 – SCE calls TEC to notify they can’t provide the data as requested and asks TEC to use meter information to calculate the Transformer loads
- Feb 11th – TEC pays invoice for Data
- Feb 18th – TEC follows up with SCE about receipt of invoice payment, no responses
- Feb 19th – SCE shares they didn’t receive payment
- Feb 25 – SCE still hasn’t received payment
- Feb 26 – TEC cancels check because SCE contact was not routed the payment and submits payment electronically, expects SCE receipt within 48 hours
- March 5th – TEC follows-up with SCE to determine if payment was received
- March 13th – SCE finally receives payment
- March 14th – SCE sends data to Chris Naylor
- March 18th – SCE sends GRF data that wasn’t shared initially
- March 19th – TEC requests call with SCE to discuss data issues
- March 22nd – TRC, TEC, and SCE have call to discuss missing data
 - No way to determine total transformer load information given that we don’t have all of the representative meters & Incomplete location data
- April 18th – SCE shares that they cannot share the data required due to customer Confidentiality Rules
 - We later find out this is the 15/15 Rule
- April 22nd – TEC reaches out to alternative contacts we have at SCE – Javier Mariscal for support on Data Request
- April 26th – Call with Javier at SCE to discuss data request
 - Javier suggested asking LWV if they would want to be involved in collaborating with SCE. Javier thought we had a good case to try and elevate this within SCE – LWV is trying to do the right thing by electrifying their fleet. Javier requests a for summary of the problem, data requested, and let him know who else we (or LWV) have tried to involve from SCE.
- April 30th – Summary provided to Javier
- May 3rd – Javier indicates he will reach out to “Local Planning team”/ Jad & Steve, to coordinate efforts

- May 3rd week: TRC reaches out to Jad/Steven with Planning to identify pathways to continue proceeding to obtain information
- May 9th – Rebecca requests Jad’s supervisors details and asks about 15/15 rule
- May 14th – Jad indicates his team is scheduling a meeting to discuss the data request, Rebecca asks if TEC Project Team can participate in person. Jad says the 15/15 rule is not the reason they can’t share data (This is not what he had shared on the phone in recent conversations)
- May 15th – Jad requests information Rebecca had suggested as approach to Plan B
- May 15th – Rebecca reiterates specific and original request to SCE and clarifies that the other information (Plan B) is secondary to initial request
 - GPS coordinates and sizes for the transformers - We referenced SCE’s DERIM map while in the field and unfortunately, found that the map was missing transformers and switchgears based on our field observations. We need to know where the transformers are located, sizes and what LWV meters they serve (we have a CISR for LWV meters) so that we can evaluate if they can serve additional loads, such as the EV chargers.
- May 16th – Jad resends data originally provided because he thinks it’s addressing our original and reiterated request.
- May 16th – Rebecca reminds Jad that we already received this information and even had a follow-up call with him to explain what the gaps were
- May 17th – Jad shares that Account Representative, Christian Torres, will be setting up a call with us to discuss our questions or concerns
- June 19th - Meeting with SCE to discuss transformer data, 2pm-3:30pm