



**Training Proposal for:**  
**Sacramento Area Electrical Workers Joint Apprenticeship  
 and Training Committee**  
**Agreement Number: ET15-0904**

**Panel Meeting of:** August 22, 2014

**ETP Regional Office:** Sacramento

**Analyst:** J. Basquez

**PROJECT PROFILE**

Contract Attributes:	Priority Rate Retrainee Apprentice	Industry Sector(s):	Construction  Priority Industry: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Counties Served:	18 Northern California Counties	Repeat Contractor:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Union(s):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No IBEW Local 340		
Turnover Rate:	≤20%		
Managers/Supervisors: (% of total trainees)	N/A		

**FUNDING DETAIL**

Program Costs	+	Support Costs	=	Total ETP Funding
\$313,600		\$21,600 8%		\$335,200
In-Kind Contribution:	50% of Total ETP Funding Required			Inherent

**TRAINING PLAN TABLE**

Job No.	Job Description	Type of Training	Estimated No. of Trainees	Range of Hours		Average Cost per Trainee	Post-Retention Wage
				Class / Lab	CBT		
1	Retrainee Priority Rate Journeyman	Business Skills, Commercial Skills, Computer Skills, OSHA 10/30	200	8-200	0	\$564	\$39.06
				Weighted Avg: 24			
2	Retrainee Apprentice	Commercial Skills, OSHA 10	80	24-210	0	\$2,780	\$20.32
				Weighted Avg: 200			

**Minimum Wage by County:** Job Numbers 1 & 2: SET Priority Industry \$20.32

**Health Benefits:**  Yes  No This is employer share of cost for healthcare premiums – medical, dental, vision.

**Used to meet the Post-Retention Wage?:**  Yes  No  Maybe

\$2.74 per hour may be used to meet the Post-Retention Wage for trainees in Job Number 2 only.

**Wage Range by Occupation**

Occupation Titles	Wage Range	Estimated # of Trainees
Journeyman Electricians		200
Apprentice Electricians		80

**INTRODUCTION**

The Sacramento Area Electrical Workers Joint Apprenticeship and Training Committee (Sac Electrical JATC) proposes to retrain journeymen and train apprentice electricians.

Sac Electrical JATC, a nonprofit training organization founded in 1941 and located in Sacramento, is dedicated to providing up-to-date industry skills that lead to high-quality job opportunities. Sac Electrical JATC is governed by a Board of Trustees comprised of four labor and four management representatives, and is a joint effort of the International Brotherhood of Electrical Workers (IBEW) Local 340 and the National Electrical Contractors Association (NECA). Sac Electrical JATC currently serves approximately 123 Apprentices and 1,000 Journeymen.

This is the sixth Agreement between ETP and Sac Electrical JATC. This training proposal is designed to address several changes. First, upcoming revisions to the California Code of Regulations, Title 24, Part 6, California Building Standards Code (CBSC). Second, new building standards such as California Advanced Lighting Controls Acceptance Testing are becoming a required feature in large commercial buildings. Third, there is a continuing shift from analog to digital equipment. Finally, the expansion of the SAC Electrical JATC into seven new counties will enable the training centers to increase the number of journeymen served.

## **Apprenticeship**

The Panel is authorized to fund Apprentice training that does not displace any other source of government funds, or replace an existing apprenticeship program. The Apprenticeship Training Pilot Training allows funding for programs sponsored by a Joint Apprenticeship Training Committee (JATC) or a Unilateral Training Committee/Division of Apprenticeship Standards (DAS).

The Panel provides reimbursement for 200 hours per-trainee for the Related and Supplemental Instruction (RSI) portion of an apprenticeship training program. RSI is delivered as class/lab training by Los Rios Community College District.

For the building trades, where it is not customary for workers to be employed for 90 consecutive days with one employer, the Panel may substitute hours worked for retention. The modified retention period must be no less than 500 hours within 272 days with more than one employer. Sac Electrical JATC is requesting this modified retention period.

To ensure ETP does not displace Montoya Funds, Apprenticeship Pilot reimbursement is reduced by \$5.00, reducing the priority industry rate from \$18.00 to \$13.00 per hour. ETP wage for Apprentices will be \$20.32 per hour. This is the Special Employment Training Statewide as modified for priority industries which is being used for all Apprentice occupations, for ease of administration.

### **DAS Retention Rates**

The average retention rate for the Sac Electrical JATC for the years 2009-2012 was 72.8% which exceeds the Electrical Industry average of 65.1%.

## **PROJECT DETAILS**

The Journeyman program is intended to bring work skills and knowledge up-to-date, as required by CBSC. Apprentice training will prepare new apprentices to replace the high level of retiring journey level electricians and to accommodate the increased need for electricians in the area. Training will also produce competency and pride that lead to true craftsmanship.

### **Training Plan**

**Commercial Skills** (80%) - Training for Journeymen includes codeology; alternating principles; grounding; fire alarm systems and installations; fire life safety; motor control; programmable logic controls, electrical design, and voice, data, and video; California Advanced lighting control (CALCTP) program; and CALCTP acceptance testing. Apprentices will receive RSI on similar subjects, at an entry level.

**Business Skills** (5%) - Training for Journeymen will include topics such as team building, leadership, problem solving, advanced time management, project management, and creating project bids. Training will assist electricians in using collaborative bidding and project management practices, leading effective teams, solving problems, and improving customer service.

**Computer Skills** (5%) - Training for Journeyman will include AutoCAD to provide the tools to not only read blueprints but to be able to modify them as needed while at the jobsite. Job Tracking will train electricians to manage projects more closely by being able to look up project

requirements, budgets and timelines whenever needed. Training will also include operation of scheduling and job planning software.

### **OSHA 10/30 (10%)**

OSHA 10/30 training is a series of courses “bundled” by industry sector and occupation. Typically, it is delivered to workers in the building trades. It consists of 10 hours of training for journey-level and 30 hours for frontline supervisors.

This training is not required as a condition of doing business in California. However, the coursework must be approved by, and the instructors must be certified by Cal-OSHA.

Completion of the training results in a certificate that expands employment opportunities. To ensure that each trainee receives certification, ETP will only consider payment earned upon completion of the full 10-hour or 30-hour course. OSHA 10/30 is not included in the 10% limitation on safety training.

OSHA10/30 training in the basics of occupational safety and health will assure that workers are more knowledgeable about workplace hazards and understand their rights as workers. The work done by electricians requires hand/eye/foot coordination, finger dexterity and high concentration. Equipment not used correctly and materials not transported safely can also lead to immediate injuries. Therefore, participating employers and property owners need the electricians to undergo additional training so that the workers can perform their work efficiently, but safely.

### **Impact/Outcome**

- The proposed training program will help unionized employers meet the challenges of staying competitive by giving workers the skills to stay employed in the industry.
- The program will train to the needs of local employers, thus improving job security and reducing periods of unemployment for unionized electricians living in 18 counties in California.
- Sac Electrical JATC will offer certification classes in topics such as Crane Operations, Arc Flash Prevention, Lockout/Tagout, and Rigging and Lifting

### **Marketing and Support Costs**

Marketing will be done through direct mailings, informational flyers, personal contacts, telephone calls, public service announcements, emails, and the website. Class information will be disseminated throughout the year to all apprentice and journeyman electricians within the jurisdiction as well as to the electrical contractors who employ them during the summer.

There are three staff members assisting with marketing, recruitment, needs assessments and scheduling. Sac Electrical JATC has two full-time and ten part-time trainers who will assist with the training.

Sac Electrical JATC requests 8% support costs to fund its staff in recruiting and qualifying additional participating employers for this program. While many participating employers have already been recruited, additional recruitment and assessment activities will continue. The projected budget costs for personnel alone will exceed the ETP support cost funding. Sac Electrical JATC will cover these additional costs. Staff recommends the 8% support costs.

## Curriculum Development

The curriculum was developed and customized with input from both labor and management representatives to address the local needs of its members, participating employers and the industry. The union was directly involved in the development of this curriculum and training plan and is in full support of the training for its members. All of the retrainees are members of IBEW Local 340.

The Apprentice program uses the National Joint Apprenticeship and Training Committee's Curriculum which was developed for the exclusive use of IBEW-NECA JATCs.

## Commitment to Training

Employers will continue to make contributions to the training trust for every hour worked by Apprentices and Journeymen. Safety training is, and will continue to be, provided by the participating employers in accordance with all pertinent requirements under state and federal law.

## RECOMMENDATION

For staff recommends approval of this proposal.

## ACTIVE PROJECTS

The following table summarizes performance by Sac Electrical JATC under an active ETP Agreement:

Agreement No.	Approved Amount	Term	No. Trainees (Estimated)	No. Completed Training	No. Retained
ET13-0915	\$331,095	11/1/2012 – 10/31/2014	195	129	129

Based on ETP Systems, 21,546 reimbursable hours have been delivered for a potential earning of \$311,333 (94% of approved amount). The Contractor projects final earnings of 100% based on training currently committed to by employers and in progress through September 2014.

## PRIOR PROJECTS

The following table summarizes performance by Sac Electrical JATC under ETP Agreements that were completed within the last five years:

Agreement No.	Location (City)	Term	Approved Amount	Payment Earned \$ %
ET10-0258	Sacramento	11/2/09 – 11/01/11	\$74,669	\$26,041 (35%)
ET08-0397	Sacramento	3/3/08 – 3/2/10	\$213,600	\$60,641 (26%)

Earned funding for these two agreements was lower than anticipated because of the impact of the recession on the construction industry. Sacramento electricians, like many other workers in the down economy, were experiencing higher than normal unemployment rates. Jobs were difficult to obtain. Many of the trainees who managed to find work did not work enough to meet retention requirements.

### **DEVELOPMENT SERVICES**

Sac Electrical JATC retained California Labor Federation in Sacramento to assist with development of this proposal at no cost.

### **ADMINISTRATIVE SERVICES**

Sac Electrical JATC retained Strategy Workplace Communications in Oakland to perform administrative services in connection with this proposal for a fee not to exceed 13% of payment earned.

### **TRAINING VENDORS**

N/A

## **Exhibit B: Menu Curriculum**

### **Class Lab Hours**

8 - 200 Job Number 1

Trainees may receive any of the following

### **Journeyman Training**

#### **COMMERCIAL SKILLS**

##### Codeology

- National Electrical Code
- Other Recognized Standards (Installation Changes)
- Plan, Build, and Use
- Related Standards (Mandatory and Permissive Rules)
- Special Occupancies and Equipment
- Arc Flash

##### Analog/Digital Circuit (AC/DC) Principles

- Math for Electricians
- Ohm's Law
- Generators
- Inductance/Reactance
- Series/Parallel Circuits

##### Grounding

- Grounding and Bonding
- National Electrical Code Article 100-Definitions and Provisions
- National Electrical Code Article 110-Requirements
- National Electrical Code Article 90-Introduction
- National Electrical Code Article Chapters 1-4
- Significant Changes to National Electric Code

##### Fire Alarm Systems and Installations

- Definitions and Systems
- Initiating Devices and Notification Systems
- National Electrical Code and Installation Requirements
- Start Up and Check Out Procedures
- National Fire Protection Act, 1972 (NFPA 72)

##### Fire Life Safety

- National Electrical Code (Relating to Fire Alarms)
- National Electrical Code Article 725
- National Electrical Code Article 760
- NFPA 72
- Principles of Electronics
- Industrial Motor Control
- Control Relays and Timers
- Jogging and Plugging Controls
- Manual Starters and Magnetic Coils

- Push Buttons, Selector Switches, and Mechanical Devices
- Solid State Electronic Devices
- Variable Frequency Drives

#### Programmable Logic Control (PLC)

- Developing Ladder Programming
- Introduction to Programmable Equipment
- Programming Programmable Logic Controllers
- Using Timers and Counters in Logic Programs
- Writing a Program

#### Electrical Design

- 3 and 4-Way Switching
- Design of Electrical Circuits
- Magnetic Motor Control and the Code
- LonWorks and Building Automation
- Transformers and the Code

#### Voice, Data, and Video

- Audio Distribution
- CCTV Security Surveillance
- Computer Networking
- Fiber Optics
- Telephonic Interconnect

#### Industry Specific Skills

- Solar Panel Installation
- Solar Photovoltaics
- Building Automation Systems
- Confined Space Entry
- Specialized Tools
- Conduit Bending
- Rigging and Lifting
- Firestop Installation
- Blueprints and Schematics
- Work Flow and Resources
- Proper Installation and Use of Testing and Auditing Materials/Equipment\*
- Understanding New Technologies and Changes to Industry Standards\*
- Proper Equipment Set-Up\*
- Safe Working Practices
- Advanced Instrumentation and Motor Controls
- Programmable Logic Controllers
- Advanced Welding
- Architecture Designs and Advanced Plan Reading
- Management and Monitoring of Materials
- Testing Materials and Equipment –Proper Set-Up and Use\*
- Understanding Changes to Industry Standards\*

**CALCTP (California Advanced Lighting Control Program)**

- Advanced Lighting Control Systems
- Lighting Control Strategies
- Line Voltage Switching Controls
- Low Voltage Switching Control
- Dimming Controls
- Occupancy Sensors
- Photosensors
- CALCTP Acceptance Testing

**BUSINESS SKILLS**

- Teambuilding Skills
- Green Awareness Training and Green Certifications
- Leadership Skills
- Customer Service Skills
- Conflict Resolution
- Problem Solving
- Decision Making Skills
- Inventory Checklist
- Advanced Time Management
- Filling Out Work Documents and Reports Accurately
- Project Management
- Creating Project Bids

**COMPUTER SKILLS**

- Auto Computer-Aided Design (AutoCAD)
- Job Tracking System
- Scheduling & Planning Jobs

**OSHA 10/30 (OSHA CERTIFIED INSTRUCTOR)**

- OSHA 10 (requires completion of 10 hours)
- OSHA 30 (requires completion of 30 hours)

**Class/Lab Hours**

24-210 (Job Number 2) Apprentices may receive any of the following:

**Apprentice Training****COMMERCIAL SKILLS****Safety**

- General Job-Site Safety Awareness
- First Aid/CPR Certification
- Emergency Procedures
- Compliance with OSHA, NFPA and EPA Regulations
- Substance Abuse Awareness

### Tools, Materials and Handling

- Proper Care and Use of Hand and Power Tools
- Proper Rigging Methods
- Proper Digging Techniques
- Proper Use of Motorized Equipment;
- Platform Lifts, Fork-Lifts and Bucket Trucks
- Proper Material Lifting and Handling

### Math

- Appropriate Mathematical Calculations to Solve for Related Problems

### Electrical Theory

- Basic Electro-Magnetic Principals
- Ohm's Law
- AC/DC Theory
- Series, Parallel and Combination Circuits

### Characteristics of circuits

- Voltage, Current, Power, Resistance, Impedance, Capacitance and Reactance

### Theory of Superposition and Solving for Multiple Voltage-Sourced Circuits

- Operation and Characteristics of Three-Wire Systems
- Operation and Characteristics of Three-Phase Systems
- Use of Electronics in the Electrical Industry
- Code Requirements
- National Electrical Code and Local Codes

### Conductors

- General Characteristics
- Conductor Installation Codes and Techniques
- Methods for Selecting Proper Size and Type of Conductors

### Conduit and Raceways

- Terms Associated with Conduits and Raceways
- Procedures for Laying out Various Types of Bends
- Procedures for Making Proper Bends When Fabricating Conduits
- Conduit Support Systems Recognized by Code

### Lighting Systems

- Function, Operation & Characteristics of Various Lighting
- Lighting Distribution and Layout

### Installation and Connection of Fixtures

- Over-current Devices
  - Function, Operation and Characteristics of Over-Current Protection Devices
  - NEC Requirements for Over-Current Protection Devices
  - NEC Requirements for Ground-Fault and Arc-Fault Protection
- ### Grounding Systems
- Functions, Operation and Characteristics of Grounding Systems

- Sizing, Layout and Installation of Grounding Systems
- Insulation and Isolation
- Proper Grounding and Bonding Techniques
- Special Circumstances

#### Services and Distribution Systems

- Function, Operation and Requirements for Various Panel Boards and Switch Gear
- Grounding Requirements
- Code Requirements

#### Prints and Specifications

- Creation of Blueprints Plans and Specification
- Use of Blueprints, Plans and Specification
- Recognizing Information Contained within Blueprints

#### Motors, Motor Controllers and Process Controllers

- Function, Operation and Characteristics of Motors (AC, DC, Dual-Voltage)
- Proper Motor Installations
- Motor Controllers, Control Circuits and Control Devices
- Control Transformers, Switches and Relays
- Instrumentation, Process Control Systems and Devices

#### Generation and Power Supplies

- Principles of Generating Electricity
- Principles of Alternative Energy Generating Systems
- Installation and Maintenance of Uninterruptible Power Supplies (UPS)
- Installation and Maintenance of Emergency Battery Systems

#### Transformers

- Function, Operation, and Characteristics of Transformers
- Selection and Installation of Transformer Types
- Transformer Grounding Techniques
- Harmonics and Power Quality

#### Personal Development

- Orientation to Organization and Structures
- Working with Others
- Personal Financial development

#### Electrical Testing

- Steps Used for Various Testing Processes
- Proper Selection and Use of Test Meters
- Utilizing the Results of Testing Procedures

#### Specialty Systems

- Fire Alarms
- Security Systems

**CALCTP**

- Advanced Lighting Control Systems
- Lighting Control Strategies
- Line Voltage Switching Controls
- Low Voltage Switching Control
- Dimming Controls
- Occupancy Sensors
- Photosensors

\*Electric Vehicle Infrastructure Training Program (EVITP)

**OSHA 10 (OSHA CERTIFIED INSTRUCTOR)**

- OSHA 10 (requires completion of 10 hours)

Safety training will be limited to 10% of total training hours per trainee. This cap does not apply to OSHA 10/30 training.

Note: Reimbursement for Job Number 1 training is capped at 200 total training hours per trainee, regardless of method of delivery. Reimbursement for Job Number 2 Apprenticeship training is capped at 200 total training hours per trainee in Commercial Skills and 10 hours of OSHA10 for a total of 210 hours, regardless of method of delivery.