

3-Year Electricity Metering RSI Online Training Program for Electric Utility Apprentices 2024/2027

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Our Revolutionary Training Program

Objective

To provide electricity metering instruction for utility sponsored/approved and registered electricity metering apprentices or trainees. Our revolutionary program delivers a strong foundation of metering knowledge and provides insight into the role an apprentice serves within an electric utility company. Amid our focused training, we also encourage the development of safety skill sets, trouble-shooting skills, and critical thinking abilities, which boosts apprentice confidence in their ability to perform and improve their work. Nourishing the whole person to become a success journeyman metering professional, owning the skills of their trade.

Program Overview, Format, and Timeline

Overview

Beginning with the very basic foundations of electricity mechanics, we bring everyone to a common ground from which to begin building up their metering skills. Course topics are designed to be sequentially delivered in such a manner as to develop a solid understanding of metering and its related skills. We start with a high level overview of an electric utility. From Generation to Customer Load and everything that goes on in between, we reference the “big picture” and the importance of their role in the utility, then break it down into pieces, so that they can see how it all fits together. We work our way through to intermediate level comprehension and finish up their development with an advanced skill set that is comparable to a Seasoned Journeyed Professional.

Program Format

Our program is framed within the guidelines, requirements, and standards for Electricity Metering Apprenticeship Programs that have long been established by the IBEW’s and JATC’s of Washington, Oregon, Utah, Arkansas, Texas, Montana, and Colorado.

We meet the 432 required instructional hours by delivering a total of 108 online training sessions over a three year (36 month) period.

Timeline

Each 4-hour session is done via live instruction webinar. There are 36 weeks of training per year which are scheduled* across a 12 month period.

- Introduction and Exit:
 - ◆ **FirstWeek™** is four 3-hour sessions at the beginning of the program. It is a necessary component for the success of the apprentices, who will spend this time getting to know each other and learn to be comfortable online together in preparation for their 3 years of online instruction.
 - ◆ **ExitWeek™** has been transformed and is now an optional additional 6 sessions of online training.
- Class Sessions begin with an open forum discussion and brief review of the previous week’s instruction.
 - ◆ Questions related to field training experiences are also addressed during this time. Situational discussions in which all Apprentices are encouraged to participate and share their learning experiences both in the field and shop.
 - ◆ We use these discussions as a format for building strategic knowledge through their tactical awareness and developing critical thinking skills.
 - ◆ Metering safety and vocabulary are part of every class session!

**Note: Schedules for each year are provided at the beginning of the year and discussed as a group.*

Curriculum

Course Topics

- 1) Vocabulary and Definitions
- 2) Electric Meter Safety
- 3) Electricity Training
- 4) Self-Contained Single Phase Metering Principles
- 5) Mathematics for Electricity Metering
- 6) Vector Training for Electricity Metering
- 7) Self-Contained Single Phase Metering Proofs
- 8) Customer Relations
- 9) Application of Single Phase AMI Metering Principles
- 10) Single Phase Distribution Transformer Theory and Connections
- 11) Revenue Protection
- 12) Rates, Tariffs and Policies
- 13) Demand Metering
- 14) Field Test Instruments and Equipment
- 15) Instrument Rated Single Phase Metering Principles
- 16) Instrument Transformers
- 17) Instrument Rated Single Phase Metering Proofs
- 18) Self-Contained Three Phase Metering Principles
- 19) Self-Contained and Instrument Rated Metering Commonalities
- 20) Self-Contained Three Phase Metering Proofs
- 21) Application of Three Phase AMI Metering Principles
- 22) Three Phase Distribution Transformer Theory and Connections
- 23) Pulse Metering
- 24) Instrument Rated Three Phase Metering Principles
- 25) Instrument Rated Three Phase Metering Proofs
- 26) Reactive Metering
- 27) High Voltage Metering
- 28) High Voltage Metering Proofs
- 29) Telemetry Metering
- 30) Totalizing Metering

**BE
SAFE
ALL
WAYS**

Training Materials provided by HITT

Books, Workbooks, and Materials (for each participant) include:

- Meterman's Bible Set (3 books): Single Phase, Three Phase and Three Phase Primary
- 6 Workbook binders containing worksheets and training presentations
- Meter Voltage Reference Guide
- Specialty Metering Diagrams Reference Manual (The Legacy of Var-Hour Metering)
- Distribution Transformer Connections Training Manual and Field Guide (DTC)
- Metering Diagrams - Proofs and Truths Explained (Single Phase and Three Phase)
- Class Materials: Calculators, protractors, scales and other items that assist with instruction.

Course Structure

Section One:

Self-Contained Single Phase Metering 1 and 2; Electricity Meter Safety 1; Definitions and Vocabulary 1; Electricity 1; Electricity Metering Principles 1; Mathematics for Electricity Metering 1; Single Phase Distribution Transformers 1; Demand Metering 1; Customer Relations 1; Field Test Instruments and Equipment 1; Revenue Protection 1; Rates, Tariffs and Policies 1; Safe Procedures for Installing and Removing Single Phase Self-Contained Meters;

Section Two:

Instrument Rated Single Phase Metering 1 and 2; Electricity Meter Safety 2; Definitions and Vocabulary 2; Electricity 2; Electricity Meter Principles 2; Instrument Transformers 1; Mathematics for Electricity Metering 2; Single Phase Distribution Transformers 2; Demand Metering 2; Rates, Tariffs and Policies 2; Field Test Instruments and Equipment 2;

Section Three:

Self-Contained Three Phase Metering 1 and 2; Electricity Meter Safety 3; Electricity 3; Meter Vocabulary and Definitions 3; Application of Single Phase AMI Metering Principles; Electricity Meter Principles 3; Self-Contained and Instrument Rated Metering Commonalities; Three Phase Distribution Transformer Connections 1; Mathematics for Electricity Metering 3; Pulse Metering 1; Customer Relations 2; Demand Metering 3; Revenue Protection 2; Field Test Instrument & Equipment 3; Rates, Tariffs and Policies 3;

Section Four:

Instrument Rated Three Phase Metering 1 and 2; Meter Safety 4; Electricity 4; Meter Vocabulary and Definitions 4; Mathematics for Electricity Metering 4; Electricity Meter Principles 4; Pulse Metering 2; Three Phase Distribution Transformer Connections 2; Demand Metering 4; Application of Three Phase AMI Metering Principles; Instrument Transformers 2; Rates, Tariffs and Policies 4; Field Test Instrument & Equipment 4; Meter Communications 1;

Section Five:

High Voltage Metering 1 and 2; Reactive Metering 1 and 2; Meter Safety 5; Electricity 5; Meter Vocabulary and Definitions 5; Mathematics for Electricity 5; Electricity Meter Principles 5; Three Phase Distribution Transformer Connections 3; Customer Relations 3; Meter Communications 2; Totalizing Metering; Pulse Metering 3; Telemetry Metering;

Section Six:

Electricity Meter Principles; Field Metering Safety; Electricity; Meter Vocabulary and Definitions; Customer Relations; Mathematics for Electricity; Demand Metering; Pulse Metering; Single and Three Phase Transformer Connections; High Voltage Metering; Field Test Equipment; Rates, Tariffs and Policies; Instrument Transformers; Reactive Metering; Meter Communications; Totalizing Metering;

Assessments

There are a total of five (5) assessments that will need to be proctored by the apprentice's manager/supervisor and sent back to HITT for review and evaluation. Scored assessments are then scanned and sent back to the apprentices to be reviewed together in class as a group.

Assessments are designed to measure strengths, weaknesses, and comprehension of the material. Apprentices must achieve a 75% (or better) accuracy, with an 85% (or better) needed as one of the requirements in qualifying for an HITT certified RSI trained electricity metering professional.

Assessments also serve to help identify areas where additional instructional support for an apprentice may be needed (with the apprentice's mentor or journeyman being contacted if it is deemed necessary to do so).

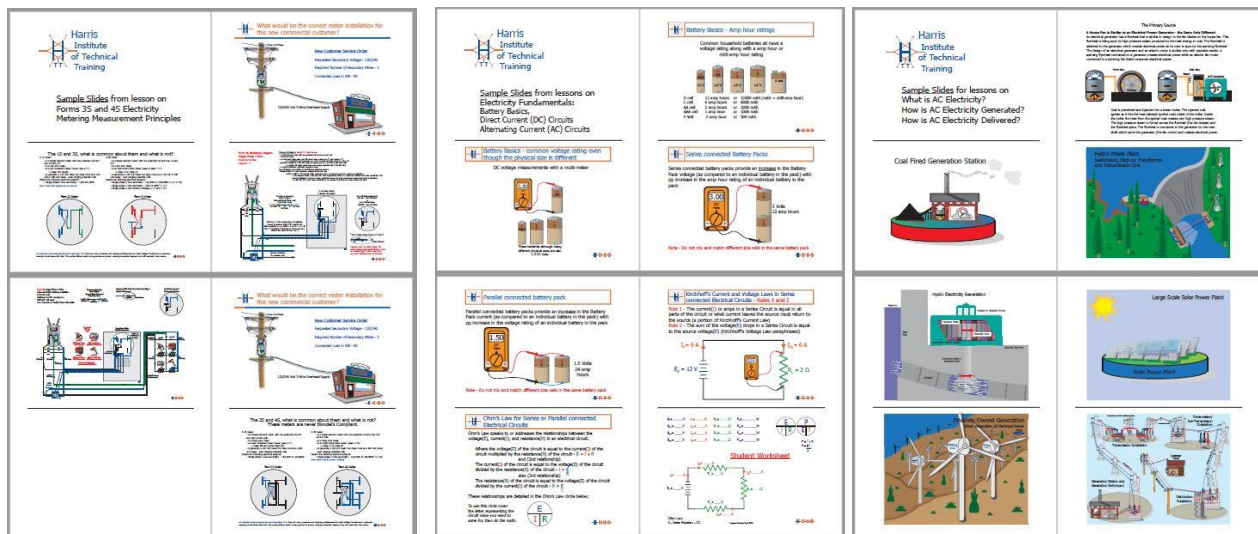
NOTE: These assessments are **not** designed to remove an apprentice from the training program specifically, but rather to serve as a tool for measuring an apprentices' progress and the development of their skills. Mentors and instructors are to use these to recognize and acknowledge areas of strength and to help identify any areas where further training needs to be applied.

Again, it's crucial (and we repeat), **these Assessments are not to be used as a disciplinary resource.** They are to serve as a reference for combined work-related factors to determine the apprentice's overall progress in their understanding of the field work, on-the-job training values, and overall performance of the apprentice, as well as meeting company specific requirements defined for the utility's apprenticeship standards.

Samples of Curriculum Material

"Seeing is believing"

We offer a sample packet containing 53 examples from presentations in our Year 1 curriculum material for reference and to use as a comparison against current training materials and/or other training related programs. While 53 examples might seem like a lot of material for a 'sample', we wanted to be sure to provide a real sense of our training style. We would be happy to discuss any questions you may have about the material in these sample pages, so please don't hesitate to contact us to receive your packet.



Keys to a Successful Program

Mentoring

It is not just the application of learned tactical awareness, but the actual experience of applying that awareness to the work, that garners the need for a mentor's guidance to strengthen and develop the strategic knowledge of an apprentice. **"They just don't know, what they don't know"** is a testament of many seasoned Journeyman Metermen when they are referencing the 'greenness' of an apprentice's skills in the field. Apprentices need the wisdom and tutelage of a knowledgeable and seasoned professional in order to become a successful and safe journeyman themselves.

Fostering and building Mentoring among peers. We're all on the same team! Honoring the individual strengths that help each other to build up areas where weaknesses exist, are what make a meter department strong. Apprentices who have gone through our program have found themselves in a unique position to help peers and co-workers 'refresh' their own knowledge with all the exciting energy of their learning being brought to the Meter Shop, Fieldwork, Peers, and Mentors. Our role as an instructor of apprentices, is taken seriously, emulating a positive role modeling experience.

Safety, Communication, and the Meter Shop Environment

First and foremost in our training, we emphasize that Safety begins with the individual. **No one is more responsible for your safety than you are.** We strive to impart the wisdom that "it's your life and livelihood that are at risk" whether you are driving to the store or working on 480V hot-work; you are ultimately the one responsible for choosing to Be Safe All Ways and that includes being fully present.

Individuality. Learning styles. Personal experiences. Diversity. These are all pieces that influence our ability to communicate, with an understanding that reality is based upon each person's perspective and unique experiences. Effective communication begins with having a "common ground" or agreed point of understanding. Knowing what the processes are for the work to be done, having expectations for the various types of metering to be worked on or installed, and the ability to work as a team are key components to developing a strong foundation in a meter shop and amongst the electrical crafts people who are part of it.

We introduce and explain **"Ground Truth and Official Truth"**, both of which have their place in a utility, but for a meter shop it is vital that 'ground truths' be allowed. This helps to maintain a healthy and safe working environment. Metering professionals must be afforded the safety for Ground Truth discussions amongst peers and supervisors. Not an environment for those who need to feed their Ego or to 'show off' their skills. The meter shop is where having a sense of respect for the metering craft is an honored value.

Having an Expectation

The one key feature that sets a metering professional apart is their ability to trouble-shoot a situation. In performing their work, it is necessary to have a skill set that allows the Journeyman (and Apprentice) to have expectations regarding the work at hand. To understand the why's and how's of metering and electricity. How will you be able to identify a problem or even know what to look for if you don't have an expectation for each trouble shooting situation? "Have an expectation" is a term used in our training and participants will hear this often throughout their training when it is applicable.

Costs and Budgeting

Program Costs for Sept 2024 thru June 2027 Apprenticeship Training

Program Costs: Hours and Materials per Apprentice	Costs
Registration Fee (Secures Spot, Materials, Administrative Set-up)	\$925
432 Instructional Hours	\$22,129
Books, Workbooks, and Training Materials	\$1,856
Program Total	\$24,910
Payment Options:	
Option A: Total Program Paid in full (10% Discount)	\$21,587
Option B: Paid Annually (3 Payments of \$7,995) <i>Due by the 10th of September of each training year *</i>	\$23,985
Option C: Paid Quarterly (12 Payments of \$2,000) <i>Due by the 10th of Sept., Dec., Mar., and June of each training year *</i>	\$24,000
<i>*includes admin fee</i>	

Travel costs and extended weeks:

No travel required for HITT instruction – 100% Online:

- 1) **FirstWeek™**, a crucial component to the success of the webinar group’s ability to foster strong and healthy relationships and build a network of trust and familiarity with fellow apprentices and the instructor.
- 2) **Introductions:** 2-hour online meeting with incoming apprentice and their manager (scheduled the week before **FirstWeek™**).
- 3) **Extended weeks:** An optional extended 6 weeks of training is available (at no add’l cost as long as a minimum of two of the enrolled apprentices choose to continue).

Possible travel expenses: [Meter School Participation](#) (Meter School of Utility’s Choice):

Materials Costs to be considered:

- A) Each apprentice will need the following items to participate:
 - 1) Hardware: Laptop with camera or desktop computer with camera and a headset w/ mic
 - 2) Software/Apps:
 - ◆ GoToMeeting is the online app resource used for our classes.
 - ◆ YouTube access for viewing class material related to safety videos (viewed during class).
 - 3) Recommended Books: The Edison Institute’s “Handbook for Electricity Metering” (This book is not provided by HITT, but is strongly recommended that one be obtained for the apprentice’s use).

Instructor Background and Qualifications

Brad Harris – BIO

Electricity Metering Expert, Instructor, Technical Author, and the Founder of HITT.

Brad started his electricity metering career in the warehouse of a utility in Salt Lake City, Utah. From there he moved into meter reading, then became the Night Collector. In 1981, he began his electricity metering apprenticeship, a journey that would ultimately lead him to develop his lifelong passion for the electricity metering craft. Upon graduating from his apprenticeship in 1984, Brad literally began teaching apprentices the very next day and has been teaching electricity metering principles, mathematical concepts, and electrical theories ever since. Brad moved into the meter relay department, completing his certification for that training as well, which has further enriched his passion for this craft work.

Brad's combined relay tech and metering experiences provided him with the skills and knowledge necessary to teach electricity metering to Apprentices, Journeyman, Managers, Related Field Personnel, Account Mgrs., and Customer Service Representatives. It is his heartfelt desire to see each apprentice achieve journeyman status along with the life skills needed to become successful, both personally and professionally, that fuels his commitment to providing strong shoulders for all those whom he has come before and those who are yet to be. Brad's concern for personal safety is at the heart of his instruction and delivery at all times and is a core value of HITT.

Keynote Speaker (opening session) at the following Meter Schools:

- ****Mid-South Electric Meter School (MSEMA) Tennessee**
- North Carolina Electric Meter School (NCMS) Myrtle Beach, NC
- Rocky Mountain Electric Meter Association (RMEMA) Ft. Collins, CO
- Southwest Electric Meter Association (TEEX-SWEMA) Bryan, TX
- ****Northwest Meter School (NWMS) Seattle, WA**
- Great Lakes Electric Meter School (GLEMS) Kalamazoo, MI
- Arkansas Electric Meter School – Fayetteville, AR
- EUSERC – Sacramento, CA
- International Lineman's Rodeo and Safety Conference

***Returning Keynote Speaker Events*

Seattle City Light: Training Facility Set up and Lab Design

In 1996, Brad assisted with the design, development, and building of two training centers while at PacifiCorp. One in Wilsonville, OR and the other was in Sandy, UT. It was his reputation for having a key role in the design of these two centers and the impressive result of his hard work that garnered him a position with Seattle City Light in 2011. The apprenticeship manager had sought Brad out to work on a joint project with Centralia Community College and the Pacific NW Center of Excellence. He was a strong asset for their project and the development of a hands-on AMI lab and training facility at Seattle City Light's South Service Center for all metering and field related personnel.

Next at SCL: The AMI Program Team

Brad was asked to take on another key role on the AMI Program Team, helping to guide them through all the connectivity related to the Tech Meter Operations and how specific Business Processes impacted the AMI Implementation Plan. He was contracted back 1 year later to help identify and finalize the business processes of Tech Meter in preparation for the impending scheduled deployment date.

References: Utilities where we have provided training

Brad has trained apprentices at or provided customized Journeyman refresher training for the following utilities (contact info provided upon request):

- APEX (Burlington, VT)
- City of Sitka (Sitka, AK)
- City Utilities (Springfield, MO)
- Central Electric Coop (Redmond, OR)
- Consumers Power, Inc (Philomath, OR)
- CORE (Sedalia, CO)
- Cowlitz PUD (Longview, WA)
- Empire Electric Assoc., REC (Cortez, CO)
- Eugene Water & Electric Board (Eugene, OR)
- Flathead Electric (Kalispell, MT)
- Grant County PUD (Ephrata, WA)
- Grays Harbor PUD (Aberdeen, WA)
- Idaho Falls Power (Idaho Falls, ID)
- LaPlata Electric Association (Durango, CO)
- Mason Co. PUD #3 (Shelton, WA)
- Maui Electric Company (Maui, HI)
- Navopache Electric Coop (Lakeside, AZ)
- Northwestern Energy (Butte, MT)
- Oregon Trail Electric Coop (Baker City, OR)
- Owatonna Public Utilities (Owatonna, MN)
- Ozarks Electric (Fayetteville, AR)
- PacifiCorp (Portland, OR)
- Portland General Electric (Portland, OR)
- Tillamook PUD (Tillamook, OR)
- Umatilla Electric Cooperative (Hermiston, OR)
- Weatherford Utilities (Weatherford, TX)
- Yakama Power (Yakama Nation, WA)
- Yellowstone Valley Electric Coop (Huntley, MT)

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Social Media Connectivity

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<https://www.youtube.com/channel/UCg8YwGXE84luq8kQ0zB4OKw>

