

MIDWEST RENEWABLE ENERGY ASSOCIATION

STUDENT HANDBOOK

Program and Course Information

Updated December 2021



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1.0 MREA Mission and Vision

The MREA is a non-profit, 501(c)3 tax-exempt organization.

1.1 Mission Statement

The Midwest Renewable Energy Association promotes renewable energy, energy efficiency, and sustainable living through education and demonstration.

1.2 Vision Statement

The MREA will provide the highest quality renewable energy education and training experiences available. Our programs and services will respond to evolving energy issues, empower people to make wise lifestyle choices, and be accessible to the broadest possible audience. We will share our success with other like-minded organizations, recognizing that we are stronger when we all work together for our common goals.

1.3 Non-Discrimination Policy

The MREA does not discriminate on the basis of age, ancestry, color, creed, disability, gender identity, marital status, national origin, political affiliation, race, religion, sex, sexual orientation, or any other class protected by law. The MREA does not discriminate on the basis of these characteristics in providing educational services or in hiring qualified staff and instructors.

1.4 Commitment to Safety and Safe Practices

The MREA is committed to safety and safe practices in training and in the workplace. It is the responsibility of all MREA instructors and staff to ensure that the workplace remains safe and that all training is completed in a safe and professional environment. If an MREA instructor identifies any unsafe conditions or unsafe work practices, he or she shall immediately report the situation to the MREA Site Manager or other available MREA staff member, who shall take immediate steps to remedy the unsafe environment or practice. All MREA courses shall comply with industry standard safety practices for the technology being taught, including appropriate OSHA standards.

1.5 Commitment to Quality and Continuous Improvement

Course standards and prerequisites are reviewed periodically at the MREA All-Instructor Meeting, using relevant evaluation data collected from course participants, as well as input from MREA instructors. The MREA Training Director and staff organize modifications to course standards, and subsequently to course materials, with participation from instructors, training partners, and renewable energy professionals. The MREA is committed to providing education and training that is up-to-date, relevant, flexible, accessible, industry relevant, and meets the needs and expectations of course participants.

2.0 MREA Staff and Board of Directors

2.1 MREA Staff

Leadership Team:

- Nick Hylla, Executive Director
- Gina Miresse, Development Director
- Amiee Wetmore, Operations Director

nickh@midwestrenew.org
ginam@midwestrenew.org
amieew@midwestrenew.org

MREA Staff Members:

- Taylor Ball, Program Manager taylorb@midwestrenew.org
- Ellen Barlas, Solar Workforce Manager ellenb@midwestrenew.org
- Leon Dulak, Site Manager leond@midwestrenew.org
- Kyle Galloway, Development Coordinator kyleg@midwestrenew.org
- Lauren Graves, Communications Manager lauren@midwestrenew.org
- Jenny Heinzen, Training Director jennyh@midwestrenew.org
- Hailey Johnson, AmeriCorps Event Coordinator hailey@midwestrenew.org
- Greta Ladenthin, Training Manager gretal@midwestrenew.org
- Nick Matthes, Solar Project Manager matthes@midwestrenew.org
- Marta Monti, Solar Program Manager marta@midwestrenew.org
- Peter Murphy, Solar Program Director peterm@midwestrenew.org
- Jeff Schneider, AmeriCorps Solar Program Coordinator jeff@midwestrenew.org
- Mark Stultz, IT Administrator marks@midwestrenew.org
- Celia Sweet, Events Manager celia@midwestrenew.org
- Chad Wolf, Training Coordinator chad@midwestrenew.org

2.2 Board of Directors

Board meetings are open to MREA members and the general public. All MREA members in good standing can vote for the Board of Directors. Each membership (individual or family) receives one ballot. Board members are elected to two-year staggered terms. Individuals interested in running for the Board of Directors must also be MREA members in good standing.

Executive Committee:

President: Jack O’Donohue – Grange, IL
 Vice President: Denise Abdul-Rahman – Indianapolis, IN
 Financial Officer: Carol Fisher – Madison, WI
 Secretary: Becky Soglin – Iowa City, IA

MREA Board Members:

- Huda Alkaff – Milwaukee, WI
- Robert Blake – Roseville, MN
- Fritz Ebinger – Minneapolis, MN
- Nick Hylla – Custer, WI
- Alex Jarvis – Bloomington, IN
- Mark Klein – Amherst, WI
- Jack Kluempke – Saint Cloud, MN
- Stanley Minnick – Madison, WI
- Jamez Staples – Minneapolis, MN
- Eric Udelhofen – Madison, WI

2.3 Board of Directors Conflict of Interest Policy

The MREA does not endorse or promote board members, their companies, or their products or services. Board members will not use their association with the organization to imply any endorsement. MREA

does not grant preferential treatment toward board members or their companies when selecting instructors or contracting for work to be done on MREA projects or facilities.

Concerns regarding conflict of interest, or requests for our full policy, should be directed to any member of the MREA's Executive Committee.

3.0 MREA Facilities

The MREA has two offices in Wisconsin and travels to provide training throughout the Midwest. MREA headquarters are located at the Renew the Earth Institute in Custer, Wisconsin.

3.1 Renew the Earth Institute (REI) – Custer, WI

The Renew the Earth Institute (REI) is a 4,200 square foot building on 20 rolling acres where people of all ages can learn about renewable energy, energy efficiency, sustainable living and other environmental issues. The REI has a number of working renewable energy systems, educational displays, demonstration gardens, and a classroom. The building incorporates energy efficient features, including passive solar design, standing-seam metal roof, day lighting, energy efficient light fixtures, solar tubes, a masonry stove, and in-floor radiant heat. The North Building has additional classroom and lab facilities, as well as more functioning renewable energy systems. Visitors can take guided and self-guided tours of the facilities and renewable energy systems.

7558 Deer Road
Custer, WI 54423
715-592-6595
715-592-6596 (fax)

3.2 Electric Vehicle Charging at the REI

The Renew the Earth Institute (REI) in Custer, WI has eight electric vehicle charging stations available for public use, located underneath the PV carport.

- ABB Fast Charger
- Tesla Charging Station
- Clipper Creek Charging Stations (6)

The ABB Terra 53 DC Fast Charger is equipped with a CHAdeMO connector as well as a CCS connector. The charger can provide up to 50 kW of power but generally runs around 35 kW. Payments are accepted through GreenLots registration. Tesla owners must provide a conversion (adapter) from CHAdeMO or CCS to connect to the ABB Fast Charger.

The Tesla Level II High Power Connector (19.2 kW) can provide up to 80 amps at 240 volts. The six Clipper Creek Level II, HCS40R, 7.7 kW charging stations provide up to 30 amps at 240 volts. Cost to charge is free, but donations to the MREA are appreciated.

3.3 Milwaukee Office

The MREA has an office at Escuela Verde, a public charter school designed to support students interested in sustainability, student-led learning, and restorative justice.

3628 West Pierce Street
Milwaukee, WI 53215
414-988-7963

3.4 Offsite Training

The MREA offers courses at the Renew the Earth Institute (REI) in Custer, WI, as well as online and throughout the Midwest at various schools, training facilities, and events. Training can be delivered at technical and community colleges, universities, community centers, offices, shops, labs, manufacturing facilities, or any other space that meets the requirements listed in section 5.1. Customized training is available for groups or events upon request.

4.0 Accreditation and Curriculum

The MREA strives to meet the *General Requirements for the Accreditation of Clean Energy Technology Training* as defined in the Interstate Renewable Energy Council (IREC) Standard 01023:2013. MREA course learning objectives are often aligned with Job Task Analyses (JTAs) published by the North American Board of Certified Energy Practitioners (NABCEP) for their PV Associate Program and Solar Professional Board Certifications.

4.1 Accreditation

IREC Training Provider Accreditation includes the following MREA courses:

- Basic Photovoltaics (PV 101)
- PV Site Assessment (PV 201)
- PV System Design (PV 202)
- PV Exam Prep (PV 220)
- PV Labs & Design Scenarios (PV 304)
- PV Sales & Finance (PV 435)
- Navigating the NEC (G 110)

4.2 NABCEP Education Provider Registration

The MREA is a Registered Provider of the NABCEP Photovoltaic Associate. Those who successfully complete MREA's Basic Photovoltaics (PV 101), PV Site Assessment (PV 201), and PV System Design (PV 202) courses is eligible to sit for the NABCEP PV Associate exam using the MREA as their Education Provider (education pathway). See section 7.5 for more information.

The MREA is also a Registered Provider of NABCEP Continuing Education. See section 8.3 for a list of approved courses and how many hours under each credential/category they are worth.

4.1 Curricula and Syllabi

MREA courses and programs are based on defined curricula and syllabi that cover the content of relevant job task analyses. Prerequisites and learning objectives are clearly stated in the syllabus for each course. Course activities and evaluations are used to assess learning outcomes. Instructors and industry professionals work with MREA staff to keep course curricula, syllabi, and all related materials current and accurate.

4.2 Curriculum Management

MREA training materials are developed through a participatory process between MREA staff and instructors to form the basis for course presentations, resources, activities, and assessments. Course materials are reviewed by MREA staff and instructors on an ongoing basis and through instructor meetings. Modifications to MREA course materials are the result of peer review by contracted instructors and industry experts. Any changes made are reported annually to IREC.

4.3 Student Learning Assessment

Exercises, worksheets, case studies, review questions, and similar activities are used to assess student learning relevant to the learning objectives listed in the course syllabus. Evaluations are used to collect information from participants regarding the quality and efficacy of instructors, course content and materials, and interaction with the MREA. These evaluations provide necessary feedback to improve courses and training programs. Course evaluations are anonymous. Compiled results of course evaluations are shared with instructors during their annual review or upon request.

5.0 Course Delivery

The MREA delivers courses in-person and online. Some courses may contain both in-person and online elements, and some in-person courses may include hands-on and/or outdoor work.

5.1 Classroom and Lab Courses (In-Person Training)

The MREA conducts training at the Renew the Earth Institute (REI) in Custer, Wisconsin (MREA headquarters) or in other approved facilities throughout the Midwest, including community and technical colleges, universities, conference and convention centers, and office/work spaces.

Training sites must meet the following requirements:

- Accessibility must conform to the Americans with Disabilities Act (ADA) and be available to all course participants.
- The site must meet all safety and occupancy codes of the jurisdiction where it is located.
- There should be a minimum of 25 square feet of floor space per course participant.
- Acoustics and lighting should be adequate for hearing clearly and reading/writing/working.
- Ventilation and temperature control should be adequate for the health and comfort of course participants and instructors.

Some courses are available only in a classroom or lab setting, and are not currently available online:

- | | |
|-----------------------------------------------------------|-----------|
| • Intro to Solar Energy Work (PV 105) | 8 hours |
| • PV Labs & Design Scenarios (PV 304) | 8 hours |
| • Roof-Mount PV System Design & Installation Lab (PV 312) | 16 hours |
| • Energy Storage Fundamentals (PV 451) | 8 hours |
| • Designing Solar Plus Storage Systems (PV 452) | 8 hours |
| • Solar Plus Storage Design Scenarios (PV 453) | 8 hours |
| • Inspecting PV Systems (PV 604) | 2-4 hours |
| • PV Curriculum Development (PV 703) | 16 hours |

Letters of Completion are distributed at the end of the course or emailed to participants afterwards.

Continuing Education Credits with state agencies (WI, IA & MN) are recorded after a course is complete, and participants should keep their Letters of Completion for NABCEP reporting and proof of attendance.

5.2 Online Courses

The MREA uses a third-party program called Moodle (mreacourses.org) for online training. All course materials are accessed through Moodle, and participants are assigned a username and password when a course registration is confirmed.

Online courses are delivered in one of three formats:

- Self-paced, instructor-led, start anytime, due dates enforced (PV Associate Core Courses)
- Instructor-led, scheduled start/end/due dates, weekly live meetings (Advanced PV courses)
- Independent Study (1-year due date enforced)

PV Associate Core Courses

Self-paced, instructor-led, online courses are available year-round, and participants can start anytime. Once registration is confirmed, a due date is assigned. These courses include instructor office hours twice per week so participants can interact in a live format if desired, but participation is not mandatory. Letters of Completion are sent to those who successfully complete all required course activities by their assigned due date.

- Basic Photovoltaics (PV 101): One month to complete Equivalent to 8 hours classroom
- PV Site Assessment (PV 201): One month to complete Equivalent to 8 hours classroom
- PV System Design (PV 202): Two months to complete Equivalent to 16 hours classroom

Advanced PV Courses

These instructor-led online courses have scheduled start dates and end dates. Additionally they contain weekly live Zoom sessions with the instructor. Participation in the live meetings is highly encouraged but not required. Zoom sessions are recorded and posted on the course page for those who want or need to listen afterwards. Letters of Completion are sent to those who successfully complete all required course activities by their scheduled end (due) date.

- Battery-Based PV System Design (PV 420) Equivalent to 4 hours classroom
- PV Systems O&M Fundamentals (PV 425) Equivalent to 4 hours classroom
- Introduction to System Advisor Model [SAM] (PV 430) Equivalent to 5 hours classroom
- Modeling PV-Battery Systems in SAM (PV 431) Equivalent to 4 hours classroom
- PV Sales & Finance (PV 435) Equivalent to 8 hours classroom

Independent Study Courses

Seven of MREA's online courses are offered in an independent-study format, are available year-round, and participants can start anytime. Once registration is confirmed, a due date of one year is assigned. Letters of Completion are sent to those who successfully complete all required course activities by their assigned due date.

- Working with Electricity (G 108) Equivalent to 4 hours classroom
- Navigating the National Electrical Code (G 110) Equivalent to 6 hours classroom
- PV Exam Prep (PV 220) Equivalent to 4 hours classroom
- Fire Code Regulations for PV Systems (PV 620) Equivalent to 1 hour classroom

6.5 Customized Training (600-Level)

600-level courses are primarily intended for code officials, electricians, inspectors, and other Authorities Having Jurisdiction (AHJs) but may also be suitable for advanced design and installation audiences. These courses can be held online or in-person. Prerequisites may include an introductory-level course, field experience, and/or a license or credential in the related field.

6.6 Instructor Institutes (700-Level)

700-level courses are “train-the-trainer” courses designed for instructors who are active in a renewable energy training program at a college, university, or educational organization. Prerequisite courses, a license or credential in the related field, and/or teaching experience may be required.

7.0 Courses, Programs, and Prices

For information regarding current course offerings and prices, visit midwestrenew.org/training-programs or call the MREA at 715-592-6595. MREA Members receive a \$20 discount on courses, and Business Memberships include a \$20 discount for employees. More information on MREA membership levels, benefits, and prices can be found at midwestrenew.org/membership.

7.1 General Education (G) Courses

- Working with Electricity (G 108) \$55 (Member price)
- Navigating the NEC (G 110) \$95

7.2 Photovoltaic (PV) Courses

- Basic Photovoltaics (PV 101) \$115
- Intro to Solar Energy Work (PV 105) Varies
- PV Site Assessment (PV 201) \$175
- PV System Design (PV 202) \$295 + textbook
- PV Exam Prep (PV 220) \$75
- PV Labs & Design Scenarios (PV 304) \$250
- Roof-Mount PV System Design & Installation Lab (PV 312) \$325
- Battery-Based PV System Design (PV 420) \$125
- PV Systems O&M Fundamentals (PV 425) \$125
- Introduction to System Advisor Model [SAM] (PV 430) \$135
- Modeling PV-Battery Systems in SAM (PV 431) \$125
- PV Sales & Finance (PV 435) \$155
- Energy Storage Fundamentals (PV 451) \$165
- Designing Solar Plus Storage Systems (PV 452) \$255
- Solar Plus Storage Design Scenarios (PV 453) \$255
- Inspecting PV Systems (PV 604) Varies
- Fire Code Regulations for PV Systems (PV 620) \$55
- PV Curriculum Development (PV 703) Varies

7.3 Small Wind (W) Courses

- Introduction to Wind Energy Systems (W 101) \$80
- Small Wind Site Assessment (W 201) \$100

7.4 Solar Training Academy

Participants in the Solar Training Academy work through a series of courses through online coursework and weekly Zoom meetings with their instructor and classmates. Participation (including audio and visual confirmation) is required and due dates for online coursework are enforced. Courses in the Solar Training Academy include:

- Working with Electricity (G 108)
- Basic Photovoltaics (PV 101)
- PV Site Assessment (PV 201)
- PV System Design (PV 202)
- PV Exam Prep (PV 220)
- PV Labs & Design Scenarios (PV 304) – optional
 - Bloomington, IL April 23, 2022
 - Deerfield, WI April 30, 2022
 - Minneapolis, MN May 7, 2022
 - Custer, WI May, July & September

Fees for the Solar Training Academy include:

- Six MREA courses
- Personalized, instructor-led training from a NABCEP PV Professional
- Textbook
- Binder with printed course materials
- Printed copy of the MREA Basic PV Manual
- Online access to course materials and resources
- NABCEP PV Associate Exam

Solar Training Academy Fee Schedule for 2022

- Early bird registration ends December 1, 2021 \$1,699 (Member price)
- Registration closes January 7, 2022 \$1,799
- Payment plans are available upon request

7.5 NABCEP PV Associate Exam

The North American Board of Certified Energy Practitioners (NABCEP) offers an Associate program as well as Certifications in PV and Solar Heating. The MREA is an approved PV Associate exam provider. MREA course participants who successfully complete Basic Photovoltaics (PV 101), PV Site Assessment (PV 201), and PV System Design (PV 202) are eligible to sit for the NABCEP PV Associate exam. The MREA strives to align its curriculum with the content domains and task steps published in the [NABCEP PV Associate Job Task Analysis \(JTA\)](#).

A registration link for the NABCEP PV Associate Exam is located on the MREA website at midwestrenew.org/nabcep-credentials. The exam can be taken in one of three formats:

- Paper & pencil (\$180)
 - Available only at pre-approved sites on scheduled dates for specific groups that attended in-person training with an MREA instructor
- Computer-Based Testing (CBT) at an approved testing facility (\$150)
 - Available year-round
 - Date, time, and location scheduled with NABCEP's testing agency (Scantron)

- Live Remote Proctoring (LRP) from home or office (\$150)
 - Available year-round
 - Date, time, and technical requirements scheduled and confirmed with Scantron

7.6 MREA PV Site Assessment Endorsement

In 2018, the MREA retired its Site Assessment Certificate and Recognized Training Provider (RTP) Programs. The PV Site Assessment Certificate was replaced with the PV Site Assessment Endorsement. To obtain the MREA PV Site Assessment Endorsement, candidates must have:

- Previously earned the PV Site Assessment Certificate, or
- Completed MREA’s Basic Photovoltaics (PV 101) and PV Site Assessment (PV 201) courses, passed the PV Site Assessment Endorsement exam, and have a minimum of 100 hours of related work experience verified by an employer.

A minimum score of 84% is required to pass the Site Assessment Endorsement exam, which can be taken online at mreacourses.org. Retake exams are available after a two week waiting period. Exams contain 50 multiple-choice questions and are not timed.

The Employer Verification Letter and more information about MREA’s PV Site Assessment Endorsement can be found at midwestrenew.org/endorsements.

8.0 Academic Progress, Assessment, and Continuing Education

8.1 Course Completion Requirements

Course completion is recorded as PASS or DROP in the MREA recordkeeping database. Participants who diligently complete all required coursework and assessment activities by their due date PASS the course and receive a Letter of Completion. The MREA does not give letter grades or calculate grade points.

Participants must be present for and participate in the full duration of an in-person course to receive a Letter of Completion. Partial credit will not be granted for any course. (See Sections 5.1 and 11.3)

8.2 Assessment Procedures

Students will be assessed on their ability to perform the tasks outlined in the learning objectives (syllabus) for the course. Classroom and lab courses contain worksheets, exercises, and end-of-day review questions. Online courses contain assignments and review questions that assess a participant’s performance and comprehension.

8.3 Continuing Education Credits

Many of the MREA’s courses are approved for continuing education with the North American Board of Certified Energy Practitioners (NABCEP) and state licensing agencies for licensed professionals in Iowa, Minnesota, and Wisconsin.

The following courses are registered for NABCEP advanced training and continuing education:

- Navigating the NEC (G 110)
 - PVIP, PVDS, PVCMS & PVTS Exams (6 JTA & NEC)
 - PVIS Exam (6 JTA)
 - SHI Exam (6 NEC)
 - PVIP, PVDS, PVIS & PVCMS Recertification (6 NEC, JTA & RE Elective)
 - PVTS Recertification (6 JTA & RE Elective)
 - SHI Recertification (6 NEC & RE Elective)
 - PV Associate, Solar Heating Associate & Small Wind Associate Renewal (6)
- PV Labs & Design Scenarios (PV 304)
 - PVIP & PVDS Exams (8 JTA)
 - PVIP, PVDS & PVIS Recertification (8 JTA & RE Elective)
 - PVCMS, PVTS & SHI Recertification (8 RE Elective)
 - PVTS Recertification (4 JTA)
 - PV Associate Renewal (8)
- Roof-Mount PV System Design & Installation Lab (PV 312)
 - PVIP, PVDS & PVIS Exams (14 JTA)
 - PVIP, PVDS, PVIS, PVCMS, PVTS & SHI Exams (4 NEC)
 - PVCMS & PVTS Exams (10 JTA)
 - PVIP, PVDS, PVIS, PVCMS & SHI Recertification (4 NEC)
 - PVIP Recertification (14 JTA)
 - PVIP, PVDS, PVIS, PVCMS, PVTS & SHI Recertification (12 RE Elective)
 - PVDS, PVIS, PVCMS & PVTS Recertification (10 JTA)
 - PV Associate, Solar Heating Associate & Small Wind Associate Renewal (12)
- Battery-Based PV System Design (PV 420)
 - PVIP & PVDS Exams (4 JTA)
 - PVIP, PVDS, PVIS, PVCMS, PVTS & SHI Exams (0.5 NEC)
 - PVTS Exam (2 JTA)
 - PVIP, PVDS, PVIS, PVCMS & SHI Recertification (0.5 NEC & Building or Fire Code)
 - PVIP & PVDS Recertification (4 JTA & RE Elective)
 - PVIS, PVCMS, PVTS & SHI Recertification (4 RE Elective)
 - PV Associate Renewal (4)
- PV Systems O&M Fundamentals (PV 425)
 - PVIP, PVIS & PVCMS Exams (4 JTA & NEC)
 - PVDS, PVTS & SHI Exams (4 NEC)
 - PVIP, PVDS & SHI Recertification (4 NEC & RE Elective)
 - PVIS & PVCMS Recertification (4 NEC, JTA & RE Elective)
 - PVTS Recertification (4 RE Elective)
 - PV Associate Renewal (4)
- Introduction to System Advisor Model [SAM] (PV 430)
 - PVIP, PVCMS & PVTS Exams (4 JTA)
 - PVIP, PVCMS & PVTS Recertification (4 JTA & RE Elective)
 - PVDS, PVIS & SHI Recertification (4 RE Elective)
 - PV Associate Renewal (4)
- Modeling PV-Battery Systems in SAM (PV 431)
 - PVIP Exam (JTA)
 - PVDS & PVTS Exams (4 JTA)

- PVIP Recertification (2 JTA)
- PVDS & PVTs Recertification (4 JTA)
- PV Associate Renewal (4)
- PV Sales & Finance (PV 435)
 - PVIP Exam (4 JTA)
 - PVTs Exam (7 JTA)
 - PVIP Recertification (5 JTA)
 - PVIP, PVDS, PVIS, PVCMS, PVTs & SHI Recertification (6 RE Elective)
 - PVTs Recertification (7 JTA)
 - PV Associate, Solar Heating Associate & Small Wind Associate Renewal (7)
- Energy Storage Fundamentals (PV 451)
 - PVIP, PVIS & PVTs Exams (2 JTA)
 - PVDS, PVIS & PVCMS Exams (0.5 NEC)
 - PVIP, PVDS, PVIS, PVCMS & SHI Recertification (0.5 NEC)
 - PVIP & PVTs Recertification (2 JTA & RE Elective)
 - PVDS & PVIS Recertification (2 JTA)
 - PVDS, PVIS, PVCMS & SHI Recertification (2 RE Elective)
 - PV System Inspector & Solar Heating Inspector Recertification (0.5)
 - PV Associate Renewal (2)
- Designing Solar Plus Storage Systems (PV 452)
 - PVIP Exam (7 JTA)
 - PVDS, PVIS & PVCMS Exam (2 NEC & 7 JTA)
 - PVTs Exam (5 JTA)
 - PVIP, PVDS, PVIS & PVCMS Recertification (2 NEC, 2 Building or Fire Code, 7 JTA & RE Elective)
 - PVTs Recertification (5 JTA & 7 RE Elective)
 - SHI Recertification (2 NEC, 2 Building or Fire Code & 7 RE Elective)
 - PV & Solar Heating Inspector Recertification (2)
 - PV Associate Renewal (7)
- Inspecting PV Systems (PV 604)
 - PVIP & PVCMS Exams (4 JTA)
 - PVIP, PVIS, PVCMS & PVTs Recertification (4 JTA)
 - PVIP, PVDS, PVIS, PVCMS, PVTs & SHI Recertification (4 RE Elective)
 - PV Associate Renewal (4)
- Fire Code Regulations for PV Systems (PV 620)
 - PVIP Exam (1 JTA)
 - PVIP, PVDS, PVIS, PVCMS & SHI Recertification (0.5 NEC, 1 JTA, 1 Building/Fire Code, 1 RE Elective)
 - PVTs Recertification (1 JTA & 1 RE Elective)
 - PV Design, Installation, and Commissioning & Maintenance Specialist Exams (0.5 NEC)
 - PV, Solar Heating & Small Wind Associate Renewal (1)
 - PV System Inspector Recertification (0.5)

The following courses are approved for continuing education by the Iowa Department of Public Safety for Master, Journeyman & Residential Electricians, when taught in-person by an approved instructor:

- Basic Photovoltaics (PV 101) – 7.5 Non-Code hours
- PV Site Assessment (PV 201) – 0.5 Code & 7 Non-Code hours
- PV System Design (PV 202) – 1 Code & 14 Non-Code hours
- PV Labs & Design Scenarios (PV 304) – 2 Code & 5.5 Non-Code hours

The following courses are approved for continuing education by the Minnesota Department of Labor and Industry (DOLI) for Electrical licenses, when taught in-person by an approved instructor:

- Basic Photovoltaics (PV 101) – 4 Other hours
- PV System Design (PV 202) – 6 Code/Energy & 10 Other hours
- PV Labs and Design Scenarios (PV 304) – 4 Code/Energy & 4 Other hours
- Energy Storage Fundamentals (PV 451) – 2 Other hours
- Inspecting PV Systems (PV 604) – 2 Code/Energy hours
- Fire Code Regulations for PV Systems (PV 620) – 1 Other hour

The following courses are approved for continuing education by the Wisconsin Department of Safety and Professional Services (DSPS):

- Working with Electricity (G 108) – 4 hours (online only)
 - Journeyman Electrician (including Industrial & Residential)
 - Registered Electrician
- Navigating the NEC (G 110) – 6 hours (classroom or online)
 - Commercial & UDC-Electrical Inspector
 - Dwelling Contractor Qualifier
 - Journeyman & Master Electrician (including Industrial & Residential)
 - Registered Electricians
- Basic Photovoltaics (PV 101) – 7.5 hours (classroom or online)
 - Commercial & UDC-Electrical Inspector
 - Dwelling Contractor Qualifier
 - Journeyman & Master Electrician (including Industrial & Residential)
 - Registered Electrician
- PV Site Assessment (PV 201) (classroom or online)
 - Commercial & UDC-Electrical Inspector – 8 hours
 - Dwelling Contractor Qualifier – 7.5 hours
 - Journeyman & Master Electrician (including Industrial & Residential) – 8 hours
 - Registered Electrician – 8 hours
- PV System Design (PV 202) (classroom or online)
 - Commercial & UDC-Electrical Inspector – 16 hours
 - Dwelling Contractor Qualifier – 12 hours
 - Journeyman & Master Electrician (including Industrial & Residential) – 16 hours
 - Registered Electrician – 16 hours
- PV Exam Prep (PV 220) – 4 hours (classroom or online)
 - Commercial & UDC-Electrical Inspector
 - Dwelling Contractor Qualifier
 - Journeyman & Master Electrician (including Industrial & Residential)
 - Registered Electrician
- PV Labs & Design Scenarios (PV 304) – 8 hours (classroom only)

- Commercial & UDC-Electrical Inspector
- Dwelling Contractor Qualifier
- Journeyman & Master Electrician (including Industrial & Residential)
- Registered Electrician
- Roof-Mount PV System Design & Installation Lab (PV 312) (classroom only)
 - Commercial & UDC-Electrical Inspector – 14 hours
 - Dwelling Contractor Qualifier – 12 hours
 - Journeyman & Master Electrician (including Industrial & Residential) – 14 hours
 - Registered Electrician – 14 hours
- Battery-Based PV System Design (PV 420) – 4 hours (classroom or online)
 - Commercial & UDC-Electrical Inspector
 - Dwelling Contractor Qualifier
 - Journeyman & Master Electrician (including Industrial & Residential)
 - Registered Electrician
- PV Systems O&M Fundamentals (PV 425) (3.5 hours classroom, 4 hours online)
 - Commercial & UDC-Electrical Inspector
 - Dwelling Contractor Qualifier
 - Journeyman & Master Electrician (including Industrial & Residential)
 - Registered Electrician
- Energy Storage Fundamentals (PV 451) – 7 hours (classroom only)
 - Commercial & UDC-Electrical Inspector
 - Dwelling Contractor Qualifier
 - Journeyman & Master Electrician (including Industrial & Residential)
 - Registered Electrician
- Designing Solar Plus Storage Systems (PV 452) 7 hours – (classroom only)
 - Commercial & UDC-Electrical Inspector
 - Dwelling Contractor Qualifier
 - Journeyman & Master Electrician (including Industrial & Residential)
 - Registered Electrician
- Inspecting PV Systems (PV 604) – 2 or 3 hours (classroom only)
 - Commercial & UDC-Electrical Inspector
 - Dwelling Contractor Qualifier
 - Journeyman & Master Electrician (including Industrial & Residential)
 - Registered Electrician
- Fire Code Regulations for PV Systems (PV 620) – 1 hour (classroom or online)
 - Commercial Building & Commercial Electrical Inspector
 - Dwelling Contractor Qualifier
 - Journeyman & Master Electrician (Including Industrial & Residential)
 - Registered Electrician
 - UDC-Construction & UDC-Electrical Inspector
- Introduction to Wind Energy Systems (W 101) – 8 hours classroom or 4 hours online
 - Commercial & UDC-Electrical Inspector
 - Dwelling Contractor Qualifier
 - Journeyman & Master Electrician (including Industrial & Residential)
 - Registered Electrician

9.0 Prerequisites and Credit for Prior Learning

9.1 Course Prerequisites

Course prerequisites are based on the scope and sequence of individual MREA courses. MREA staff will contact anyone who attempts to enroll in a course without having the proper prerequisite(s) on file.

The following courses have prerequisites:

- PV Site Assessment (PV 201) – PV 101
- PV System Design (PV 202) – PV 101 & PV 201
- PV Exam Prep (PV 220) – PV 101, PV 201 & PV 202
- PV Labs & Design Scenarios (PV 304) – PV 101, PV 201 & PV 202 or NABCEP credential
- Roof Mount PV System Design and Installation Lab (PV 312) – PV 101, PV 201 & PV 202 or NABCEP credential
- Introduction to System Advisor Model [SAM] (PV 430) – PV 101 or NABCEP credential
- Modeling PV-Battery Systems in SAM (PV 431) – PV 430 or documented SAM experience
- Battery-Based PV System Design (PV 420) – PV 101, PV 201 & PV 202 or NABCEP credential
- PV Systems O&M Fundamentals (PV 425) – PV 101, PV 201 & PV 202 or NABCEP credential
- PV Sales & Finance (PV 435) – PV 101 or NABCEP credential
- Energy Storage Fundamentals (PV 451) – PV 101 or NABCEP credential
- Designing Solar Plus Storage Systems (PV 452) – PV 451
- Solar Plus Storage Design Scenarios (PV 453) – PV 452
- PV Curriculum Development (PV 703) – PV 101, 201 & 202 or NABCEP credential, and approved instructor from a technical or community college, university, or similar educational organization
- Small Wind Site Assessment (W 201) – W 101

9.2 Credit for Prior Education and Training

Credit can be granted for those with prior education and training and will be addressed on a case-by-case basis. The registrant will be asked to provide documentation/proof of prior learning in the form of a completion certificate or transcript and may be asked to submit a course syllabus so the learning objectives can be compared to those in the approved and accredited MREA course. If the learning objectives are similar, and MREA staff has determined that the course is satisfactorily equivalent, credit will be granted and the registrant will be granted permission to enroll.

Credit cannot be granted for those who want to take the NABCEP PV Associate Exam using the MREA as their Education Provider. For those not seeking the NABCEP credential but want to enroll in a course that has PV 101 as a prerequisite of Basic Photovoltaics (PV 101), “test out” option is available for \$25. A minimum score of 80% is required to pass the PV 101 test.

Records kept in student files denote any credit that has been granted due to prior education or training. (Section 11.4)

10.0 Instructor and Student Conduct

10.1 MREA Instructors

Instructors for MREA courses are either staff members or independent contractors. All instructors must sign the MREA Instructor Code of Ethics that requires, at a minimum, instructors shall:

- Avoid all conflicts of interest, both in fact and in appearance.
- Refrain from selling products or services to participants.
- Maintain all confidential and proprietary information in the strictest confidence.
- Commit to bringing professionalism, accountability, and integrity to this work.
- Practice and maintain professional competencies according to the educational standards established and maintained by the MREA.
- Immediately report any and all incompetent, unethical, and/or unprofessional conduct by associates or clients to the attention of the MREA.
- Not make any statement or take any action that could bring the client, the certifying body, the process, the industry, the credential, or ourselves into dispute.

10.2 Grievances Against MREA Instructors

All grievances or complaints of any nature in regards to an MREA instructor will be forwarded immediately to the MREA Operations Director (OD). The OD will request a written statement from the individual making the grievance or complaint. Upon receipt of the written grievance or complaint, the OD will follow the steps listed below and have a resolution within 30 business days.

1. Determine whether the grievance or complaint is of a minor or serious nature.
2. If the grievance or complaint is of a minor nature, the OD will take appropriate action.
3. If the grievance or complaint is of a serious nature, the OD shall notify the instructor, the MREA Executive Director, and the Training Committee.
4. The OD shall send a copy of the written grievance or complaint to the instructor, the Executive Director, and the Training Committee.
5. The instructor shall be given 10 business days to respond, in writing, to the grievance or complaint.
6. The OD shall set a Training Committee meeting within the time frame specified above.
7. The Committee will review the grievance or complaint, and a response regarding appropriate action will be made. Decisions of the Training Committee shall be based upon the specifics of the allegations made.
8. The OD will prepare a written report of the resolution and mail it to the instructor within 30 business days of receiving the written allegation.
9. The instructor can submit a written appeal within 10 days of receiving the decision.
10. Upon receipt of an appeal, the OD will forward the appeal to the Executive Director and the Training Committee.
11. The Training Committee will review the appeal and respond with a decision within 20 business days of receipt of the appeal.
12. Decisions of the Training Committee are final.

10.3 Student Conduct and Expectations

The MREA expects professionalism and diligence from its instructors as well as its course participants and Certificate holders in the classroom, in the lab, online, and in the field. Any course or program participant who is showing disrespect to the instructor or other participants will be dropped from the program or course, with no refund, at the instructor's discretion.

The MREA is committed to safety and safe practices in training and in the workplace. Any participant who does not adhere to the safety rules (including OSHA standards) set forth by the instructor will be dropped from the course or program with no refund.

Participants may file a grievance against an MREA instructor if they wish to return to a course or program. (See Section 10.2)

10.4 MREA Logo Guidelines

MREA logo guidelines are designed to give direction on the authorized use and depiction of MREA logos.

- Only artwork MREA files provided may be used.
- The logos may not be altered in any way, including proportion, color, element, type, etc.
- Logos may not be animated, morphed, or distorted in any way.
- The logos, including associated words, may not have additional text wrapped around them.
- Any unauthorized use of MREA logos may result in legal action.

11.0 Registration, Cancellation, and Recordkeeping Policies

11.1 Enrollment Policy

MREA courses are open to the public on a first-come, first-served basis. Class size is limited to provide the highest quality educational experience for all participants.

Registration can be done over the phone by calling the MREA at 715-592-6595, or online at midwestrenew.org/course-offerings.

11.2 Payment Policy

The full course fee is due upon registration.

11.3 Cancellation, Extension, and Transfer Policy

Anyone who wishes to cancel a course registration should email courses@midwestrenew.org or call the MREA at 715-592-6595. The following fees may apply:

In-Person Training

- **Cancellation two weeks or more prior to start date:** If a registrant cancels two weeks or more prior to the course start date, the registrant forfeits a \$25 processing fee, and the remaining course fee will be refunded.
- **Cancellation less than two weeks prior to start date:** If a registrant cancels less than two weeks prior to the course start date, the registrant forfeits 50% of the course fee, and the remaining tuition will be refunded.

- **Failure to attend or complete a course:** If a registrant fails to attend or doesn't complete a course, the registrant forfeits the entire course fee.

Courses may be cancelled due to low enrollment, up to three days prior to the start date. Course fees will be refunded, but the MREA is not responsible for costs associated with travel or lodging arrangements. Travel insurance is recommended.

Solar Training Academy

- **Cancellation two weeks or more prior to start date:** If a registrant cancels two weeks or more prior to the Academy start date, the registrant forfeits \$250 and receives the rest in refund. The forfeited \$250 will be credited to the registrant's account and can be used for future MREA courses within the same calendar year.
- **Cancellation less than two weeks prior to start date:** If a registrant cancels less than two weeks prior to the Academy start date, the registrant forfeits \$500 and receives the rest in refund. The forfeited \$500 will be credited to the registrant's account and can be used for future MREA courses within the same calendar year.
- **Failure to attend or complete a course:** If a registrant fails to attend or complete a course, the registrant forfeits the entire course fee.

Online Courses

- **Cancellation two weeks or more prior to start date:** If a registrant cancels two weeks or more prior to the course start date, the registrant forfeits a \$25 processing fee, and the remaining course fee will be refunded.
- **Failure to complete a course:** If a registrant does not participate in, or fails to complete an online course by an assigned due date or scheduled end date, the registrant forfeits the entire course fee, but may opt for a one-week extension or to start over in a new session for \$25.
- **One-week extension:** If a registrant does not complete an online course by an assigned due date or scheduled end date, a one-week (seven-day) extension may be purchased for a \$25 fee. This extension must be purchased no later than the last day (due date) of the course.
- **Transferring to another course offering:** If a registrant fails to complete an online course by an assigned due date or scheduled end date, a \$25 fee may be paid to transfer to another offering of the same course at a later date. This transfer option expires one year after the end (due) date of the original course purchased.

11.4 Recordkeeping Policy

Per the MREA Board of Directors bylaws adopted in 2009, the destruction of business records and documents must be carefully monitored to eliminate accidental or innocent destruction and assure compliance with all applicable laws and regulations. Electronic records will be retained as if they were paper documents.

The MREA permanently retains customer records – including workshop and course attendance, certifications, and membership.

11.5 Document Control and Information Release

MREA follows a storage and release of confidential records procedures. MREA staff are the only people who have access to student data. Information collected during registration and throughout the training is not shared with people outside MREA staff/instructors unless proper permission has been obtained.

2022 Academic Calendar

To view the most current schedule of course offerings, visit midwestrenew.org/training-programs. Dates listed below may change, and more offerings will be added after the publication date of this Handbook.

Independent Study Online Courses: Available Year-Round, Start Anytime, One Year to Complete

Working with Electricity (G 108)
Navigating the National Electrical Code [NEC] (G 110)
PV Exam Prep (PV 220)
Fire Code Regulations for PV Systems (PV 620)
Introduction to Wind Energy Systems (W 101)
Small Wind Site Assessment (201)

Self-Paced Online Courses: Available Year-Round, Start Anytime, Due Dates Enforced

(PV Associate Core Courses)

Basic Photovoltaics (PV 101)	1 month to complete
PV Site Assessment (PV 201)	1 month to complete
PV System Design (PV 202)	2 months to complete

Solar Training Academy: Online Work, Due Dates & Zoom Meetings (G 108, PV 101, 201, 202 & 220)

Registration closes January 7, 2022

PV 320.01 (Tuesdays)	Jan 11 – Mar 29 (plus optional lab day)
PV 320.02 (Thursdays)	Jan 13 – Mar 31 (plus optional lab day)
PV 320.03 (Saturdays)	Jan 15 – Apr 2 (plus optional lab day)
PV Labs & Design Scenarios (PV 304.13) – Bloomington, IL	April 23
PV Labs & Design Scenarios (PV 304.15) – Deerfield, WI	April 30
PV Labs & Design Scenarios (PV 304.14) – Minneapolis, MN	May 7

Advanced Online Courses: Scheduled Start/End/Due Dates with Weekly Live (Zoom) Sessions & In-Person Training at the MREA in Custer, WI (All courses have prerequisites)

January 2022

MREA OFFICES CLOSED

PV Sales & Finance (PV 435.01) Online	January 3 Jan 10 – Feb 6
MREA OFFICES CLOSED	January 17
PV Systems O&M Fundamentals (PV 425.01) Online	Jan 24 – Feb 13
Energy Storage Fundamentals (PV 451.01) at the MREA	January 21
Designing Solar Plus Storage Systems (PV 452.01) at the MREA	January 22
Intro to System Advisor Model [SAM] (PV 430.01) Online	Jan 31 – Feb 20

February 2022

Battery-Based PV System Design (PV 420.01) Online	Feb 7-27
Modeling PV-Battery Systems in SAM (PV 431.01) Online	Feb 21 – Mar 6
Energy Storage Fundamentals (PV 451.02) at the MREA	February 24
Designing Solar Plus Storage Systems (PV 452.02) at the MREA	February 25
Solar Plus Storage Design Scenarios (PV 453.02) at the MREA	February 26

March 2022

PV Sales & Finance (PV 435.02) Online
PV Systems O&M Fundamentals (PV 425.02) Online

Mar 7 – Apr 3
Mar 28 – Apr 17

April 2022

Battery-Based PV System Design (PV 420.02) Online
Energy Storage Fundamentals (PV 451.03) at the MREA
Designing Solar Plus Storage Systems (PV 452.03) at the MREA
Solar Plus Storage Design Scenarios (PV 453.03) at the MREA

Apr 11 – May 1
April 21
April 22
April 23

May 2022

PV Labs & Design Scenarios (PV 304.01) at the MREA
Roof-Mount PV Design & Installation Lab (PV 312.01) at the MREA
[MREA OFFICES CLOSED](#)

May 20
May 21-22
May 30

June 2022

[THE ENERGY FAIR \(Courses & Workshops\) at the MREA](#)

June 24-26

July 2022

[MREA OFFICES CLOSED](#)

PV Labs & Design Scenarios (PV 304.02) at the MREA
Roof-Mount PV Design & Installation Lab (PV 312.02) at the MREA

July 4
July 29
July 30-31

September 2022

[MREA OFFICES CLOSED](#)

PV Sales & Finance (PV 435.03) Online
PV Systems O&M Fundamentals (PV 425.03) Online
PV Labs & Design Scenarios (PV 304.03) at the MREA

September 5
Sep 12 – Oct 9
Sep 19 – Oct 9
September 30

October 2022

Roof-Mount PV Design & Installation Lab (PV 312.03) at the MREA
Intro to System Advisor Model [SAM] (PV 430.02) Online
Battery-Based PV System Design (PV 420.03) Online
Modeling PV-Battery Systems in SAM (PV 431.02) Online

Oct 1-2
Oct 10-30
Oct 24 – Nov 13
Oct 31 – Nov 13

November 2022

[MREA OFFICES CLOSED](#)

November 24-25

December 2022

[MREA OFFICES CLOSED](#)

December 23-26