



## PV Development for WI K-12 Schools

2019

---

### Description

Welcome to PV Development for WI K-12 Schools, an on demand, online resource center intended to help guide WI K-12 school solar planning teams through the fundamentals of investing in PV systems. Based on the Midwest Renewable Energy Association's (MREA) experience with the U.S. Department of Energy-supported Solar Endowment project, *PV Development for WI K-12 Schools* is designed to provide your school's solar planning team everything it needs to determine the best solar investment option for your school and successfully go out to bid. Modules consist of topical videos, resources, webinars, as well as office hours with MREA's technical assistance team.

Instructors include Wisconsin K-12 school staff and representatives, solar developers, school resource partner, and MREA staff with specific experience in moving WI K-12 schools toward solar PV investments. As a participant, you are free to work through the resources at your own pace, from top to back (recommended), or a la carte as your needs see fit. The MREA encourages you to engage and collaborate with your entire stakeholder team through all stages of your PV project development, and as you utilize these resources.

### Prerequisites

Basic Photovoltaics (PV 101), or equivalent – **recommended\***

- 8 hours of instruction time to be completed at the participant's own pace
- Access for up to 5 participants per team (must be the same participants as in the *PV Development for WI K-12 Schools* Resource Center)
- Discusses the basics of PV systems, including how they work, system types and components, applications and limitations of each, how to estimate loads and system size, and the basis of site assessments.

### Office Hours

- Weekly open office hours, Tuesdays 3-5pm; Thursdays 11am-1pm
- Participants schedule via [email](#) ahead of time as needed with specific topic(s) to be discussed.

### Time Commitment

- Roughly 8 hours of recorded materials
- To complete an actual project will require teams to estimate between 4 – 10x or more in team hours from concept through construction to develop a solar PV project.
- The course is what you make of it; you can utilize it throughout the procurement process or to help determine initially if PV is right for your school

## Course Objectives

Upon completion of this course, participants will be able to:

- Describe the structure and decision-making hierarchy relevant to a PV project at your school
- Identify relevant business relationships between all stakeholders, including offices, location, utilities, solar development companies, project investors, regulators, governmental authorities,
- Enact a team engagement strategy and identify a point of contact for participants
- Describe rules and regulations governing internal procurement and investment strategies for your WI K-12 school
- Classify federal, state, and local jurisdictional permitting, inspection requirements, and fees
- Define utility relationships, rules, and procedures for investing in various solar options
- Understand your school's energy consumption history and current consumption including demand charges
- Retrieve information on existing energy generation mix and energy assets
- Prioritize sites for installation based on solar resource, technical and nontechnical factors influencing site selection, building and development considerations, and institutional values
- Differentiate between different types of PV investment models
- Choose an appropriate investment model based on internal rules, policies, and values
- Communicate the PV project development process and estimate a realistic development timeline
- Describe the purpose of RFPs, RFIs, and RFQs
- Summarize the competitive solicitation process
- Define your WI K-12 school's rules and guidelines for obtaining bids on a large-scale PV project
- Understand the components used to craft a business plan for solar PV development

## Methods of Learning

- Each team will be granted 6 months access to course materials; extensions available by request
- Team leads are encouraged to collaborate with peers and share access to topic shorts that relate to each team members skill sets.
- The various modules include:
  - 4 – 6 prerecorded topic shorts
  - Some webinars with topical experts
  - Online tools and calculators
  - Templates, guides, and other resources

## Instructors

### MREA Staff:

- Nick Hylla, MREA Executive Director
- Eric Rehm, MREA Solar Finance Manager
- Amanda Schienebeck MREA Solar Program Coordinator
- Nick Matthes, MREA Project Manager

### Additional Instructors Introduced within Topic Shorts

## Resource Center Outline

### Module 1: PROGRAM INTRODUCTION

This section serves as an introduction to the resource center, our objectives, and your responsibilities. Consider it akin to the first day of class, where the professor goes over the syllabus, but in this case, you should pay attention. The topical videos will introduce our technical assistance offerings, the roadmap and business case documents, as well as go over basic PV market trends.

- Overview
- Office Hours
- PV Development Plan
- General PV Market Trends
- Benefits of Solar on WI K-12 Schools

### Module 2: PV DEVELOPMENT CONSIDERATIONS

After understanding general market trends, the first real phase in PV project development is to set your solar planning team up for success. To begin, this module presents a course thread-line, connecting important key points and lessons presented throughout this course to provide your solar planning team an understanding of the bigger PV development picture. We then spend time focusing on the concept of success and what that looks like for a school PV project, as well as discussing key considerations to be entertained early on within the process to increase chances of moving forward with a successful PV project for your school.

- Program Thread
- Coordinating Structured Success
- Identifying Investment Objectives
- Key K-12 PV Considerations
- Solar PV Design for Educational Use

### Module 3: ENERGY ANALYSIS

The next step in PV project development is analyzing your school's energy use-- meaning you need to get your hands on some of those utility bills! This section will lay out some of the steps your solar planning team should take to understand the school's energy use and explains how this information informs the PV development process. In this module, we introduce energy analysis topics including: energy generation mix, load profiles, utility tariffs, rate designs, PV system sizing, and energy analysis tools.

- Utility Basics
- PV Valuation & Compensation
- Energy Analysis Considerations
- Weighted Average Cost of Energy
- PV System Design: Madison College

#### **Module 4: SITE SELECTION**

After gaining a basic understanding of your school's energy use and utility information, the next step in developing a PV project is conducting an assessment of your site (i.e. determining potential location(s) for a PV system and identifying other electrical and structural information). This module discusses common best practices and resources that site assessors utilize to prioritize and select ideal sites for PV development. This module is designed to help you gain an understanding of the role that site assessments play in the PV development process. Then, we provide you resources to internally conduct your own site assessment, collecting information on your school's potential PV site(s) to be included in your RFP.

- Site Assessment Basics
- Site Identification Considerations
- Load & Production Impact on Site Selection

#### **Module 5: PROJECT FINANCIAL MODELLING**

An important factor in PV project planning is financial modeling of your PV system. Module 5 introduces you to PV ownership options, comparing the risks and opportunities of various ownership models available to WI K-12 schools. We also introduce you to Solar Project Builder, MREA's financial modeling tool. We highly encourage you to use the tool to view, compare, and analyze the financial value and return of various ownership options for your school's PV system.

- General Overview: Project Financial Models
- Opportunities & Risks of Various Ownership Models
- PV Component Pricing Trends
- Funding Opportunities, Incentives, & Taxes
- Solar Project Builder Demo

#### **Module 6: BID-READY SOLAR PROJECTS**

Module 6 will help your team explore how to prepare your solar PV project for competitive solicitation. Topics in this section include shaping your project for the market, prioritizing and effectively communicating your "must haves" and preferences, best practices for writing solar RFPs, and suggestions for key components of your RFP including a technical components and evaluation criteria.

- Your Solicitation Options
- General Solicitation Considerations
- RFP Technical Checklist
- RFP Evaluation Criteria
- RFP Promotion & Engagement
- RFP Best Practices: School Perspective

## **Module 7: RUNNING A COMPETITIVE SOLICITATION: RFP EVALUATION**

Module 7 discusses how to get the most out of your school's PV competitive solicitation evaluation process. Topics include a general overview of competitive solicitation process, things to consider prior to going to market, various instruments for market interaction, and designing award negotiation and management to maximize confidence in your solicitation process and outcomes.

- PV Procurement Strategies: Overview
- Competitive Solicitation: The Process
- Evaluating RFPs
- Selecting a Contractor
- Developer Perspective
- School Perspective

## **Module 8: PROJECT DEVELOPMENT ASSISTANCE**

This course (i.e. resource center) was designed using the MREA's expertise in developing solar photovoltaic (PV) projects. Through internal work done by your school's solar planning team in conjunction with these resources, your school should have everything you need to develop your own PV project and successfully go out to bid.

Through MREA's [Solar on Schools](#) initiative, and thanks to the [Couillard Solar Foundation](#), a limited number of WI K-12 schools may be awarded to receive technical assistance from the MREA's Technical Assistance Team. In Module 8, we discuss the different technical assistance services available to WI K-12 schools that submit a Roadmap or Business Case document (discussed in Module 1).

- Project Plan Assistance
- Solar PV Site Assessment Report
- Solar PV Economic Feasibility Analysis
- RFP Development Assistance
- RFP Evaluation Assistance
- System Inspection & Report