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SOLUTIONS

COURSE DOWNLOADS

Please follow the instructions provided in the registration letter to download the following items to your laptop and/or print copies for class.

- PV Value® User Manual
- Case Study 6 DCF Template
- Commercial/Industrial Solar Worksheet
- AI Residential Green and Energy Efficient Addendum
- AI Commercial Green and Energy Efficient Addendum
- Also, go to www.appraisalinstitute.org/education/green/default.aspx (Click on “More Green Resources” and find additional solar valuation resources.)

Overview

Course Description

Welcome to *Residential and Commercial Valuation of Solar*. This course is appropriate for appraisers, underwriters, appraisal reviewers, real estate agents/brokers, and quality control personnel.

As the U.S. continues to search for energy alternatives, properties improved with solar PV (photovoltaic) are becoming more common, creating demand for appraisers trained in properly valuing solar PV. A property with a solar photovoltaic (PV) system could present a valuation problem that you may not be prepared to solve. As an appraiser of green properties, it is inevitable that you will encounter solar PV. Even for those who don't specialize in green properties, the likelihood that you will encounter solar PV in your practice is increasing. This hands-on course introduces you to solar terminology and, through real-life examples and case studies on both residential and commercial properties, shows you how to solve solar-related valuation problems. This course focuses on solar PV installations most commonly encountered in commercial and residential appraisal/consulting assignments. It does not focus on utility-scale solar (solar farms), solar thermal, or other forms of on-site renewable energy generation.

Upon completion of the course, participants should be able to:

- Comprehend and identify the solar PV language.
- Identify and understand the documents and data necessary to value solar PV systems.
- Describe, understand, and analyze solar PV components and their relevance to market valuation.
- Develop a credible value opinion using the tools, worksheets, and resources provided.
- Recognize potential valuation problems, including appraisal standards and lender-underwriter concerns.

The course begins with terminology and descriptions of the various types of solar energy systems found in today's marketplace. Once a basic understanding of the solar industry is established, the material walks through the three approaches to value with mini case studies involving residential and commercial properties. Some case studies are based on real-world examples provided by others. Addresses and identifying information are fictional and, in some cases, details have been changed to provide an expanded understanding of the valuation problem.

This course is one of a series of courses that make up the Appraisal Institute's *Valuation of Sustainable Buildings* Professional Development Program. For more information about the program, see Professional Development Programs on the Appraisal Institute website at www.appraisalinstitute.org.

Note. *Residential and Commercial Valuation of Solar* is approved by GBCI for 15 CE hours.

Learning Enhancements

The course has been designed with a variety of elements to enhance your learning experience.

- **Preview.** To give you a taste of what is to come, each part begins with a *Preview* page, which includes a brief overview of the content, learning objectives to consider as you move through the content, and learning tips that will assist you in understanding the information presented.
- **Learning Objectives.** Each learning objective covers essential information needed to understand the concepts in the course. Review them before the part begins so that you have a frame of reference as you move through the material. At the end of each part, reread the objectives. Are you able to do what is stated? If not, this is the time to ask your instructor for help or review the concepts that you do not understand.
- **Examples & Problems.** To supplement the discussions, we've included examples and problems to help you visualize and practice what you are learning.
- **Case Studies.** The case studies in the course contain exercises that allow practical application of the tools and methods needed to appraise solar photovoltaic installations in commercial and residential properties.
- **Green Resources.** Tap a variety of online Green Resources from our website at: www.appraisalinstitute.org/education/green/default.aspx. Topics are expanded regularly and include legislation, national and state government sites and programs, databases, design, and solar energy.
- **Review.** Each part ends concludes with a review that includes the learning objectives and key terms and concepts that have been covered.
- **Suggested Solutions.** A tabbed section of suggested solutions appears at the end of the course handbook. This section contains solutions to the discussion questions, review quizzes, practice tests, and case studies. In order to get the most benefit from the class, it is important to work through the discussion questions, tests, and case studies before looking at the solutions.

- **Practice Tests.** These tests are included throughout the material. The questions are similar to the types of questions you might find on the exam. Answering the questions will help you assess whether or not you understand the information.

Class Policies

- 100% attendance is required. No exceptions.
- Limit use of computers and wireless devices to classroom projects.
- Communicate with business associates during break time instead of class time.
- During class, do not read materials that are not used in class, such as news, email, and social media.
- Silence cell phones and other communication devices.
- Use recording devices only if prior permission has been granted.
- If attending a classroom offering, refrain from ongoing conversations with those seated near you and other distracting behavior.

General Information

- **Laptop computer or iPad (or other tablet computing device).** This course uses PV Value® – Ei Value®, which is a web-based application. Therefore, an iPad or laptop computer is required. Excel and Adobe Reader are not required. Government or corporate participants with security measures in place on their laptops may have issues with accessing the web page and should provide their IT department with the hyperlink to receive access.

PV Value requires registration: <https://www.pvvalue.com>, and it may take up to 24 hours after registering to receive an email with the login information. Once you sign on to the site, directions are provided for downloading the PV Value tool. When working the case studies, say you are a licensed appraiser in the state of the case study to produce the final pdf of the worksheet. Participants must be able to access the internet for Parts 4–6.

- For tablet use, register for a free Ei value account at <https://www.eivalue.com> to download the iPad app from the iTunes store. You will use this software to work on the case studies in the program.
- **Calculators.** A financial calculator is required. The accepted model used in the course is the HP-12C.
- **Important Note:** Laptops, cellular phones, tablets, iPads, wearable technology (smart watch, Apple Watch, Google Glass, etc.) and other devices that can store

data or connect to the Internet are **NOT** permitted during the exam. In addition, all watches, wallets, bags, and purses must be removed and stored out of reach prior to taking the exam.

- Though dated, the original PV Value user manual provides excellent information on the authors, the model, and the source of information.
- **Breaks.** There will be two 10-minute breaks during each half-day session unless noted otherwise by the course sponsor. The lunch break is one hour.
- **Attendance sheets** will be distributed during each half-day session to verify your attendance during all sessions. 100% attendance is required.
- **Certificates of completion** may be downloaded after completion of the course, and attendance during the entire course is required.

USPAP References

All references to the Uniform Standards of Professional Appraisal Practice (USPAP) are taken from the 2020-2021 edition, effective until December 31, 2023. (Washington, D.C. The Appraisal Foundation).

Recommended Textbooks

- Runde, Timothy P., MAI, LEED® AP and Thoyre, Stacey L., WELL AP, *The Valuation of Green Commercial Real Estate*. Chicago: Appraisal Institute, 2017.
- Adomatis, Sandra K., SRA, LEED® Green Associate, *Residential Green Valuation Tools*. Chicago: Appraisal Institute, 2014.

Prerequisites

- **Recommended:** *Introduction to Green Buildings: Principles & Concepts* (OR prior attendance at one of these previously offered seminars: *An Introduction to Valuing Commercial Green Buildings* seminar OR *Valuation of Green Residential Properties* seminar)
- Intermediate understanding of valuation procedures, particularly present value calculations, depreciation, and market extraction
- Working knowledge of HP-12C calculator. (As mentioned before, cellphones are not permitted during the exam, so the smartphone app for the HP-12C cannot be used for the exam.)

- Prior to the first day, participants must sign up on the PV® Value website (www.pvvalue.com) to be able to use the tool in class. Be aware it can take up to 24 hours after registering to receive an e-mail with the login information.

Downloads

- Additional items and worksheets that are not included in the print materials are available by download. These are on a secure link connected to the registration process.
- These files should be on your hard drive in an easy-to-locate folder. You may also print copies for class, but having the files available electronically will facilitate your work.

Exam

- 25 multiple-choice questions