

# Investment Grade Solar System Feasibility

—Underwriting, Production, and Presentation of Investment Grade Studies.  
X430

EDP 301143

Course Syllabus

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Location: Room 806, 425 Market Street, UC Berkeley Downtown Center, San Francisco  
(enter on Fremont Street)

## Text

Planning and Installing Photovoltaic Systems, Second Edition ISBN-13: 978-1-84407-442-6  
[Available on Amazon](#) for \$131.40. [“Planning”]

The New Strategic Selling, ISBN-13: 978-0446695190  
[Available on Amazon](#) for \$11.02 [“Selling”]

## Online Repository

<http://groups.google.com/group/investment-solar-ucbx430-fall-2009>

## Course Executive Summary

This course is designed to help industry practitioners make better commercial solar investment decisions. It covers the current range of financial, technical, permitting, marketing/sales and capitalization options for commercial solar systems in the western United States. Planned, capitalized and operated correctly, solar can be a key component of value for a company, for a real estate project, and for the places we leave behind.

The capstone of this course is the presentation by student teams of feasibility analysis on a potential investment grade solar project of their choice.

This course is delivered at a fast tempo, and is designed for those who already understand basic finance concepts such as internal rates of return, net present value, and discounted cash flows. THIS IS NOT AN INTRODUCTORY LEVEL COURSE.

I will hold office hours for open questions thirty minutes before the start of each Tuesday evening class.

## Saturday 26SEP09 9A—>>Getting Up to Speed

*Preparation: Read Chapters 1 and 2 of Planning, and chapter 1 of Selling. Download Moscone Case Study from Google Groups site.*

| <i>when</i> | <i>what</i>                          | <i>Support Media</i> |
|-------------|--------------------------------------|----------------------|
| 9A          | Welcome, Introductions, Ground Rules | Solar Intro.ppt      |
| 915A        | <b>Course Roadmap—</b>               | Roadmap.ppt          |

|      |  |                   |
|------|--|-------------------|
|      | Expectations<br>Resources<br>Google Groups Site<br>Texts<br>Introduction<br>Learning method  |                   |
| 11A  | <b>How We Got Here</b><br>Grid energy Prices<br>AB 32<br>Government Mandates and Incentives<br>Renewables Portfolio Standard<br>Global Component Supply<br>Investment Tax Credits<br>PV is a Global Market<br>The Math Behind Renewables | Solar_roadmap.ppt |
| 12N  | <i>Lunch break</i>   |                   |
| 1P   | <b>Walkthrough</b> of Moscone Center Solar Array   |                   |
| 2P   | <b>What we Have to Work With</b><br>Solar Resource, radiation data, radiation calculations<br>Google Earth<br>Google Sketchup  | resource.ppt      |
| 3P   | <b>Introducing Instant Feasibility</b><br>How it saves Time, Wear & Tear<br>Framing the Win<br>Team Assignments<br>Site Assignments  | Case Studies.ppt  |
| 4P   | <b>How This Ends</b><br>A world of distributed, variable, generation   |                   |
| 445P | Love It/Fix It   |                   |

Tuesday 29SEP09 630P—>>**Instant Feasibility**

*Preparation: Read Chapters 3 of Planning. Download Study Material from Google Groups site.*

| <i>when</i> | <i>What</i>   | <i>Support Media</i> |
|-------------|---|----------------------|
| 630P        | Expectations<br>Objective: Quit spending time on bad deals.   | Feas Intro.ppt       |
| 640P        | Instant Feasibility Techniques—Google Earth<br>Know your Customer<br>Tariffs<br>Harvestable Area—Google Sketchup<br>Energy Productivity—Net Metering--Loads<br>Capitalization | Instant_feas.ppt     |
| 740P        | Crafting the Feasibility Checklist  | checklist.pdf        |
| 830P        | Walkthrough a Solar Feasibility Report  | SolarFeasRpt.pdf     |

|      |                           |  |
|------|---------------------------|--|
| 925P | Love It/Fix It, next week |  |
|------|---------------------------|--|

Tuesday 6OCT09 630P—>>**Capitalizing a Solar Deal**

*Preparation: Download Financial Model and financing materials from Google Groups site.*

| <i>when</i> | <i>What</i>  | <i>Support Media</i>      |
|-------------|--|---------------------------|
| 630P        | Expectations   | Cap Intro.ppt             |
| 640P        | Tax Benefits and Capitalization<br>Stephen Tracy, CPA, Partner Novogradac & Co.  |                           |
| 830P        | <b>Components of Value</b><br>Treasury Cash Grants<br>DOE Loan Guarantee Program<br>Federal Section 48 Investment Tax Credit<br>State—California PBI<br>AB811—Solar Energy District Financing<br>Local—tax abatements, permit fee waivers<br>California Feed in Tariffs<br>SREC's & Carbon Credits<br>Residual Value | Value.ppt<br>Cashflow.xls |
| 925P        | Love It/Fix It, next week  |                           |

Tuesday 13OCT09 630P—>>**Harvesting and System Design**

*Preparation: Read Chapters 4,5,6 and 7of Planning. Download design materials from Google Groups site.*

| <i>when</i> | <i>What</i>  | <i>Support Media</i> |
|-------------|--|----------------------|
| 630P        | Expectations   | Design Intro.ppt     |
| 640P        | System component Overview, System Performance<br>guest lecturer, Tobin Booth, PE, Blue Oak Energy. |                      |
| 840P        | Design Criteria and performance design optimization  | Design.ppt           |
| 925P        | Love It/Fix It, next week  |                      |

Tuesday 20OCT09 630P—>>**Host Customer Recruitment**

*Preparation: Read Chapter 10 of Planning and Chapters 5 to 15 of Selling.*

| <i>When</i> | <i>What</i>  | <i>Support Media</i> |
|-------------|--|----------------------|
| 630P        | Expectations   |                      |
| 640P        | Guest Lecturer: Dan Shugar, President, SunPower Systems. | shugar.ppt           |

|       |   |  |
|-------|---|--|
|       | Selling Solar<br>Solar Sales Role Playing               |  |
| 830P  | Using the Feasibility Study as a tool to close the Deal |  |
| 925PP | Love It/Fix It, next week                               |  |

Tuesday 27OCT09 630P—>>**Finding the Shortest Possible Path to Profitable Projects**

*Preparation: Download report materials from Google Groups site.*

| <i>When</i> | <i>What</i>  | <i>Support Media</i>                               |
|-------------|--|--|
| 630P        | Expectations   | Project Intro.ppt                                  |
| 640P        | Guest Lecturer—Marc Culpepper, CTO<br>SunEdison—Operations and Maximizing your IRR<br>Project contingency funds.<br>The Need for Proper Maintenance<br>Site Inspection | feas.ppt   |
| 730P        | Case Study—deconstructing feasibility reports—<br>the Good, the Bad, the Ugly<br>The Term Sheet  | CaseStudy1.pdf<br>CaseStudy2.pdf<br>CaseStudy3.pdf |
| 925P        | Course Evaluation Forms Completed  |  |

**SOLAR POWER INTERNATIONAL 2009** 28-29 October --Anaheim, California—  
Optional walk of the expo floor.

**Presentation Submittal:**

All presentations are required to be emailed in .pdf format to the Instructor no later than 5P Pacific Daylight Time, Friday 6NOV09. Presentations emailed after this time will not be accepted for presentation.

Saturday 7NOV09 9A-5P— Saturday >> **Presentations**

| <i>when</i> | <i>what</i> | <i>Support Media</i> |
|-------------|-------------|----------------------|
| 9A          | Team 1      |                      |
| 930A        | Team 2      |                      |
| 10A         | Team 3      |                      |
| 11A         | Team 4      |                      |
| 1130A       | Team 5      |                      |
| 12N         | Team 6      |                      |
| 1230P       | Team 7      |                      |
| 1P          | Team 8      |                      |
| 130P        | Team 9      |                      |

|      |  |  |
|------|--|--|
| 2P   | Team 10                                |  |
| 230P | Team 11                                |  |
| 3P   | Course Debrief at Thirsty Bear Brewpub |  |

**Grading**

Students will be evaluated on their contribution of the following to the class learning and experience.

|  |     |
|--|-----|
| Preparation  | 10% |
| Class Participation  | 20% |
| Preparation of Potential Solar Investment Feasibility Report | 50% |
| Presentation of Report before class and Jury                 | 20% |

**Public transportation** is highly recommended to this site. The Montgomery BART and Muni station is close by on Market Street. SamTrans and Golden Gate Transit serve the Transbay Terminal which is three blocks away.