Solar Energy Economics and Financial Modeling Training Course

Professional Development Training Course Outline

Category	Renewable Energy	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Solar Energy Economics and Financial Modeling Training Course provides a practical, industry-focused understanding of how solar PV projects, renewable energy investments, project finance, energy economics, and financial models are evaluated from development through investment and operation. Participants learn how to translate technical solar project assumptions including CAPEX, OPEX, energy yield, degradation, tariffs, financing structures, taxes, incentives, and operating costs into robust financial models that support investment decisions. The course connects clean energy transition, ESG investing, energy transition finance, sustainable infrastructure, and renewable energy project development with the commercial realities of solar projects.

Through practical exercises and case studies, participants develop the ability to assess project bankability, financial feasibility, investment returns, risk exposure, sensitivity analysis, scenario modeling, and financing strategies for utility-scale, commercial & industrial, and distributed solar projects. The training emphasizes real-world decision-making using Excel-based financial modeling, LCOE, NPV, IRR, DSCR, payback analysis, cash-flow forecasting, debt sizing, PPA economics, and investment appraisal, enabling participants to confidently evaluate solar investments and communicate financial outcomes to developers, lenders, investors, policymakers, and other stakeholders.

Programme Curriculum

Solar Energy Economics and Financial Modeling Training Course

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Course Objectives

By the end of the course, participants will be able to:

1. Understand solar energy economics, renewable energy markets, and energy-transition investment trends.
2. Evaluate solar PV project feasibility, bankability, and investment potential.
3. Build professional solar project financial models in Excel.
4. Develop accurate CAPEX, OPEX, revenue, and lifecycle cost assumptions.
5. Calculate LCOE, NPV, IRR, ROI, payback period, and DSCR.
6. Model project finance, debt structures, equity contributions, and repayment schedules.
7. Analyze PPA pricing, tariffs, merchant revenues, and contracted cash flows.
8. Incorporate taxes, depreciation, incentives, subsidies, and renewable-energy policies into financial models.
9. Conduct sensitivity analysis, scenario analysis, and financial risk assessment.
10. Evaluate project returns, investor requirements, and capital structures.
11. Assess financial impacts of resource variability, degradation, curtailment, and operational risks.
12. Apply data-driven investment analysis and financial decision-making to solar projects.
13. Present investment recommendations using bankable financial models, KPIs, dashboards, and investment metrics.

Target Audience

1. Solar Energy Project Developers
2. Renewable Energy Investors and Investment Analysts
3. Project Finance and Corporate Finance Professionals
4. Energy Economists and Financial Analysts
5. Engineers and Technical Professionals Moving into Commercial Roles
6. Government, Energy Regulators, and Policy Professionals
7. Consultants, Advisors, and Sustainability Professionals
8. Entrepreneurs and Managers in the Clean Energy Sector

Course Modules

Module 1: Solar Energy Economics and Market Fundamentals

- Solar PV technology fundamentals and the **economics of renewable energy**.
- Solar project development lifecycle and key commercial drivers.
- Understanding **CAPEX, OPEX, energy yield, degradation, and project lifespan**.
- Renewable energy market trends, energy transition, and investment drivers.
- **Case Study:** Economic assessment of a utility-scale solar PV project from development to commercial operation.

Module 2: Solar Project Cost, Revenue, and Energy Modeling

- Building project assumptions for **CAPEX, OPEX, production, degradation, and availability**.
- Forecasting solar generation and annual project revenues.
- Modeling tariffs, PPAs, escalation, curtailment, and merchant-market exposure.
- Developing operating cash-flow forecasts.
- **Case Study:** Revenue and energy-yield model for a 100 MW solar PV project.

Module 3: Excel-Based Solar Financial Modeling

- Financial-model architecture, model structure, assumptions, and best practices.
- Building integrated **income statement, cash-flow, and balance-sheet schedules**.
- Creating project timelines and annual/monthly financial forecasts.
- Applying Excel formulas, financial functions, data validation, and model controls.
- **Case Study:** Building a complete solar project financial model from a blank Excel workbook.

Module 4: Solar Project Finance and Capital Structuring

- Understanding **debt, equity, project finance, and capital structures**.
- Debt sizing using project cash flows and lender requirements.
- Modeling interest, amortization, repayment schedules, and refinancing.
- Evaluating **DSCR, debt service capacity, leverage, and equity requirements**.
- **Case Study:** Structuring debt and equity financing for a bankable solar project.

Module 5: Investment Appraisal and Financial Returns

- Calculating **NPV, IRR, ROI, payback period, profitability index, and LCOE**.
- Evaluating investor returns and required rates of return.
- Comparing alternative project configurations and investment strategies.
- Understanding weighted average cost of capital and discount-rate assumptions.
- **Case Study:** Investment committee analysis of two competing solar projects.

Module 6: PPA Economics, Tariffs, and Commercial Modeling

- Understanding **Power Purchase Agreements (PPAs)** and contractual revenue structures.
- Modeling fixed tariffs, escalators, indexation, and contract duration.
- Evaluating offtaker risk, merchant exposure, and revenue certainty.
- Analyzing tariff requirements for project bankability.
- **Case Study:** PPA pricing analysis for a commercial & industrial solar project.

Module 7: Risk, Sensitivity, and Scenario Analysis

- Identifying **technical, financial, market, regulatory, and operational risks**.

- Performing sensitivity analysis on CAPEX, tariffs, generation, OPEX, and financing costs.
- Developing base, upside, and downside financial scenarios.
- Using break-even analysis and financial risk indicators.
- **Case Study:** Stress-testing a solar project under inflation, lower generation, higher CAPEX, and interest-rate scenarios.

Module 8: Advanced Solar Investment Analysis and Bankability

- Developing lender-ready and investor-ready financial models.
- Assessing **bankability, investment readiness, ESG considerations, and financial resilience**
- Building dashboards for project KPIs and investment decisions.
- Communicating model outputs to investors, lenders, boards, and management.
- **Case Study:** Final bankability assessment of a utility-scale solar project, including investment recommendation.

Training Methodology

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
28 Sep 2026	02 Oct 2026	Online	$1,000
28 Sep 2026	02 Oct 2026	Physical	$1,500
28 Sep 2026	02 Oct 2026	Physical	$0
28 Sep 2026	02 Oct 2026	Physical	$0
28 Sep 2026	02 Oct 2026	Physical	$0
28 Sep 2026	02 Oct 2026	Physical	$0
28 Sep 2026	02 Oct 2026	Physical	$0
28 Sep 2026	02 Oct 2026	Physical	$0

Ready to enroll or request a customized program? Book online or contact us:

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