Solar Energy Risk Management 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 Risk Management Training Course is designed to equip energy professionals with advanced capabilities in identifying, assessing, mitigating, monitoring, and communicating risks across the solar photovoltaic (PV) project lifecycle. As solar deployment accelerates, organizations are increasingly exposed to technical, operational, financial, regulatory, climate, grid-integration, cybersecurity, supply-chain, health and safety, and environmental risks. Recent industry developments highlight the growing importance of managing variable renewable generation and grid reliability, while the expansion of solar PV is also increasing attention on end-of-life management and circularity.

The course integrates solar project risk assessment, bankability, investment risk, technology risk, performance management, energy forecasting, battery energy storage systems (BESS), grid stability, insurance, contracts, Power Purchase Agreements (PPAs), ESG, climate resilience, business continuity, and digital risk analytics. Participants work through realistic scenarios and case studies to convert risk concepts into actionable controls and decision-making frameworks. The methodology combines expert-led instruction, interactive discussions, practical exercises, simulations, workshops, and case-based learning approaches commonly used in contemporary renewable-energy training.

Programme Curriculum

Solar Energy Risk Management Training Course

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Course Duration

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Course Objectives

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

1. Identify and classify strategic, technical, financial, operational, regulatory, environmental, and commercial risks in solar energy projects.
2. Apply enterprise risk management (ERM) frameworks to utility-scale, commercial, industrial, and distributed solar projects.
3. Conduct solar PV risk assessments across development, construction, commissioning, operations, and decommissioning.
4. Evaluate solar resource, energy-yield, forecasting, and performance risks using appropriate analytical techniques.
5. Assess grid integration, intermittency, curtailment, congestion, and grid-stability risks associated with solar generation.
6. Analyze financial risks, including CAPEX, OPEX, revenue uncertainty, interest rates, inflation, foreign exchange, and energy-price exposure.
7. Evaluate PPA, EPC, O&M, financing, insurance, and contractual risk allocation to improve project bankability.
8. Develop climate resilience and physical-risk strategies addressing extreme weather, heat, flooding, drought, and other hazards.
9. Assess technology, equipment, degradation, reliability, availability, and supply-chain risks affecting PV assets.
10. Integrate BESS, hybrid systems, smart-grid technologies, and digital monitoring into solar risk-management strategies.
11. Strengthen ESG, environmental, social, governance, compliance, and sustainability risk controls throughout the project lifecycle.
12. Develop effective risk registers, key risk indicators (KRIs), risk dashboards, contingency plans, and business-continuity strategies.
13. Apply scenario analysis, sensitivity analysis, risk modeling, and data-driven decision-making to improve solar investment and operational outcomes.

Target Audience

1. Solar Energy Project Managers and Developers
2. Renewable Energy Engineers and Technical Specialists
3. Energy Risk Managers and Enterprise Risk Professionals

4. Investment, Finance, Banking, and Project-Finance Professionals
5. Utility, Grid-Planning, and Power-System Professionals
6. EPC, O&M, Asset Management, and Operations Professionals
7. Insurance, Legal, Compliance, and Contract Management Professionals
8. Government Officials, Regulators, Policymakers, Consultants, and Sustainability Professionals

Course Modules

Module 1: Solar Energy Risk Management Fundamentals

- Solar energy risk landscape
- Risk identification and classification
- Risk registers and heat maps.
- Enterprise Risk Management
- **Case Study:** Developing a comprehensive risk register for a utility-scale solar PV project from development through operations.

Module 2: Solar PV Technology and Technical Risk

- PV technology risks
- Performance and degradation risk
- Quality assurance and commissioning
- Technology selection
- **Case Study:** Investigating underperformance at a solar PV plant and developing a technical risk-mitigation plan.

Module 3: Solar Resource, Forecasting and Grid-Integration Risk

- Solar resource assessment
- Forecasting
- Grid integration
- Operational flexibility
- **Case Study:** Managing a high-solar-penetration scenario where variable generation creates grid-balancing challenges.

Module 4: Financial, Investment and Market Risk

- Project financial risk
- Market exposure
- Investment risk analysis
- Bankability
- **Case Study:** Stress-testing the financial viability of a solar project under changing energy prices, financing costs, and construction costs.

Module 5: Contractual, PPA, EPC, Insurance and Supply-Chain Risk

- PPA risk allocation
- EPC and O&M risks
- Insurance
- Supply-chain resilience
- **Case Study:** Designing a risk-allocation matrix for a solar project involving a developer, lender, EPC contractor, O&M provider, insurer, and off-taker.

Module 6: Climate, Environmental, ESG and HSE Risk

- Climate-risk assessment
- Environmental and social risk
- ESG governance
- HSE management
- **Case Study:** Building a climate-resilience and ESG risk plan for a solar installation exposed to extreme weather and community concerns.

Module 7: Cybersecurity, Digitalization, BESS and Emerging Risks

- Digital solar operations.
- Cybersecurity
- Battery Energy Storage Systems
- AI and predictive analytics
- **Case Study:** Developing a digital-risk response strategy for a remotely monitored solar-plus-storage facility experiencing operational data anomalies.

Module 8: Integrated Solar Risk Strategy, Business Continuity and Resilience

- Risk treatment.
- Business continuity
- Key Risk Indicators
- Scenario planning
- **Case Study:** Creating an integrated enterprise risk-management plan for a multi-site solar portfolio facing simultaneous grid, weather, supply-chain, and financial disruptions.

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
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

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