Sustainable Energy Development 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

Sustainable Energy Development Training Course provides a practical and strategic foundation for understanding the rapidly evolving global energy landscape, with emphasis on renewable energy, energy transition, energy efficiency, climate resilience, energy security, clean technology, and sustainable development. The course responds to major developments in the energy sector, including the rapid expansion of solar PV, battery storage, electrification, smart grids, and other low-emission technologies. In 2025, global renewable capacity additions reached a record 800 GW, while battery storage additions grew by around 40%, demonstrating the accelerating shift toward cleaner and more flexible energy systems.

Participants will explore how policy, investment, innovation, digitalisation, energy access, decarbonisation, and just transition strategies can support affordable, reliable, and environmentally sustainable energy systems. Particular attention is given to emerging-market and African contexts, including Kenya, where renewable sources account for nearly 90% of electricity generation and policy priorities include universal electricity access, renewable energy expansion, clean cooking, energy efficiency, and an equitable energy transition. The course combines conceptual learning with practical case studies, group exercises, scenario analysis, project development activities, and policy discussions to help participants translate sustainable-energy principles into actionable solutions.

Programme Curriculum

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Course Objectives

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

1. Explain the principles of sustainable energy development, energy transition, and net-zero pathways.
2. Evaluate solar, wind, hydro, geothermal, bioenergy, and emerging renewable-energy technologies.
3. Apply energy-efficiency and demand-side-management approaches to reduce energy consumption and costs.
4. Assess energy storage, smart grids, electrification, and system flexibility requirements.
5. Understand energy policy, regulation, climate governance, and SDG 7 frameworks.
6. Develop strategies for energy access, clean cooking, and inclusive energy development.
7. Analyse climate risk, resilience, decarbonisation, and low-carbon development opportunities.
8. Identify green finance, climate finance, ESG, carbon markets, and sustainable-investment opportunities.
9. Assess the role of digitalisation, AI, IoT, data analytics, and smart-energy technologies.
10. Evaluate the economics and feasibility of renewable-energy and energy-efficiency projects.
11. Develop approaches for just transition, green jobs, skills development, and social inclusion.
12. Apply energy-system planning, scenario analysis, and project-management techniques.
13. Formulate practical sustainable-energy strategies and implementation roadmaps for organisations, communities, and governments.

Target Audience

1. Energy policymakers and government officials
2. Renewable-energy and sustainability professionals
3. Engineers, architects, planners, and technical specialists
4. Project developers and infrastructure professionals
5. Climate, ESG, and environmental practitioners
6. Utilities, energy companies, and corporate sustainability teams
7. Development agencies, NGOs, and international organisations
8. Researchers, consultants, educators, and emerging energy professionals

Course Modules

Module 1: Sustainable Energy Development & Global Energy Transition

- Fundamentals of **sustainable energy systems** and SDG 7.
- Global trends in **decarbonisation, electrification, and energy security**.
- Energy transition drivers: climate, economics, technology, and geopolitics.
- **Case Study:** Global renewable-energy expansion and the growing role of solar PV.
- Develop a **2030 sustainable-energy transition roadmap**.

Module 2: Renewable Energy Technologies

- **Solar PV, solar thermal, wind, hydropower, geothermal, and bioenergy** fundamentals.
- Technology selection based on resource availability and project requirements.
- Renewable-energy costs, performance, scalability, and lifecycle considerations.
- **Case Study:** Kenya's renewable electricity system and geothermal development.
- Compare renewable technologies for a hypothetical community.

Module 3: Energy Efficiency & Demand-Side Management

- Principles of **energy efficiency, conservation, energy audits, and demand management**
- Efficient buildings, appliances, industrial systems, and clean cooking.
- Energy-performance indicators and efficiency improvement strategies.
- **Case Study:** Kenya's opportunities in buildings, appliances, clean cooking, and electricity-system efficiency.
- Create an **energy-efficiency action plan** for an organisation.

Module 4: Smart Grids, Energy Storage & Electrification

- **Grid modernisation, smart grids, distributed energy resources, and flexibility**.
- Battery storage, demand response, microgrids, and system balancing.
- Integrating variable renewable energy into electricity systems.
- **Case Study:** Kenya's transition toward greater flexibility, storage, and ancillary services for renewable-energy integration.
- Design a **renewable-energy-plus-storage system**.

Module 5: Energy Policy, Climate Governance & Just Transition

- Energy legislation, regulation, national energy strategies, and climate policy.
- **Paris Agreement, NDCs, SDGs, energy-access policies, and net-zero strategies**.
- Energy security, affordability, resilience, and supply-chain considerations.
- **Case Study:** Kenya's National Energy Policy 2025–2034 and its focus on renewable energy, efficiency, clean cooking, innovation, and just transition.
- Develop a **just-transition policy framework**.

Module 6: Sustainable Energy Finance & Project Development

- **Green finance, climate finance, ESG, blended finance, and sustainable investment**
- Renewable-energy project identification, feasibility, and financial evaluation.
- Risk assessment, business models, procurement, and stakeholder management.
- **Case Study:** Financing a utility-scale renewable-energy project in an emerging market.
- Prepare a preliminary **clean-energy project investment concept**.

Module 7: Digitalisation, Innovation & Emerging Clean Technologies

- **AI, IoT, smart meters, energy analytics, digital twins, and automation**.

- Data-driven energy management and predictive maintenance.
- Emerging technologies including advanced batteries, green hydrogen, and low-carbon fuels.
- **Case Study:** Digital energy management for a smart commercial building.
- Develop a **digital clean-energy solution**.

Module 8: Sustainable Energy Strategy, Implementation & Impact

- Energy-system planning, scenario modelling, KPIs, and impact measurement.
- **Climate resilience, circular economy, carbon reduction, and lifecycle thinking**.
- Green jobs, workforce development, inclusion, and community participation.
- **Case Study:** Designing an integrated sustainable-energy strategy for a growing African city.
- Present a **Sustainable Energy Development Action Plan** with measurable targets.

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
21 Sep 2026	25 Sep 2026	Online	$1,000
21 Sep 2026	25 Sep 2026	Physical	$1,500
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0

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