

FOSTERING MARKET DEVELOPMENT OF RENEWABLE ENERGY TECHNOLOGIES AND ENERGY EFFICIENCY IN AFRICA



ANSAP –

ALUMNI NETWORK AND SUPPORT FOR AFRICAN PARTICIPANTS

Knowledge Exchange Component



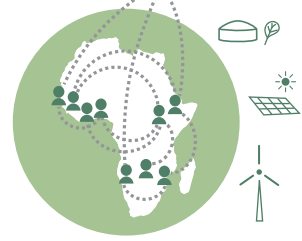
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Knowledge Exchange Component

1 What is the ANSAP Knowledge Exchange Component?

The number of students and professionals from Africa being trained in Germany in the field of green energy is growing year by year. With their education and training as well as their experience in the sector combined with local knowledge and increased networks, German-African Alumni can be considered leading actors in the development of sustainable energy systems in their home countries. Therefore, the alumni network of the “Initiative Green People’s Energy for Africa” aims to connect African graduates from German education and training programmes to support the market and business development in green energy.

The ANSAP programme supports knowledge and information sharing through three different mechanisms:

1. Alumni-Network Portal community platform;
2. Knowledge Exchange through the provision of Online Training in green energy and
3. Project Development through mentoring support

Free membership and participation

Scholarships to participate in an Online Training Programme for 60 African citizens are supported on a yearly basis by the “Initiative Green People’s Energy for Africa” from the German Federal Ministry for Economic Cooperation and Development.

Priority will be given to applicants from the following countries:

Benin, Côte d’Ivoire, Ethiopia, Ghana, Mozambique, Namibia, Senegal, Uganda and Zambia

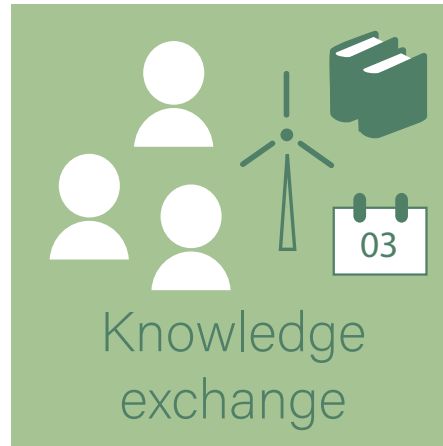


*“If you want to go fast, go alone.
If you want to go far, go
together.”*

African Proverb



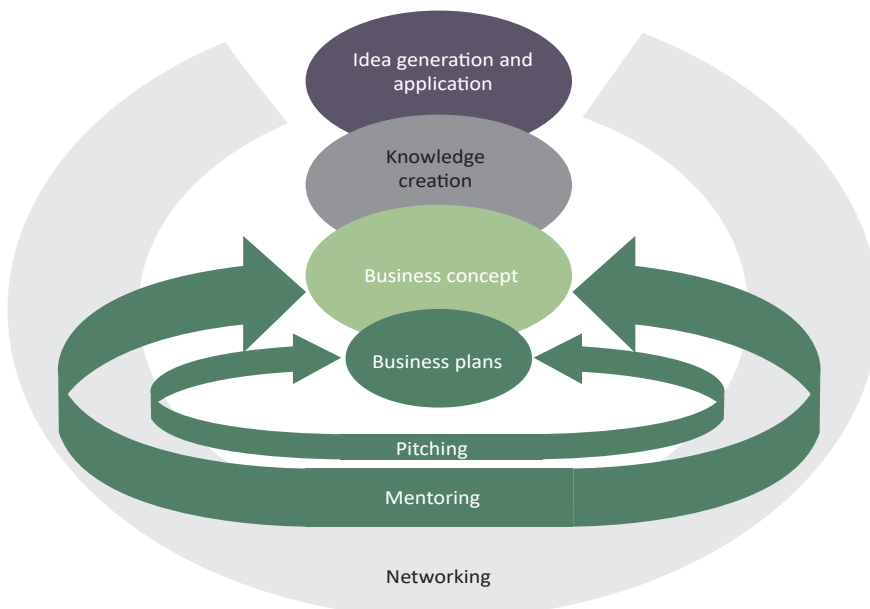
- Display your specific expertise to the Green Energy community
- Link up with other alumni as experts, partners or clients
- Profit from information provided by alumni



- Enrich your knowledge via online training scholarships
- Participate in virtual alumni conferences
- Access to regional green energy conferences/workshops



- Benefit from international experts expertise through mentoring
- Develop bankable business proposals
- African Green Energy Conferences
- Find business partners and finance through business plan pitches



It is designed to support project development in an integrative way:

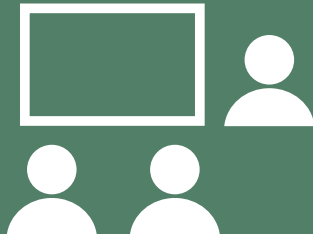
- With peer support and networking structures to promote a collaborative and integrative approach
- With online trainings to increase knowledge of renewable energy or energy efficiency technologies, business models and bankability requirements of green energy projects.
- With support to develop comprehensive and convincing business plans and project ideas for funding.
- With professional exchanges, peer-to-peer and expert mentoring
- With exposure and networking to finance institutions and/or future project partners.

RENAC Online Training



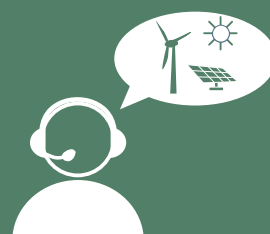
- Boost your professional career
- Study with flexibility following your own schedule
- Learn at any time and from any location

Virtual Alumni Conference



- Virtual alumni-network conference
- Projects and business ideas presentations
- Peer meetings and green energy markets discussions

Green Energy Conferences



- Workshops and side events in regional green energy conferences for selected alumni

Knowledge exchange

The Knowledge Exchange component of the ANSAP programme is designed to prepare the participant for the definition of viable project ideas in Green Energy and to increase the participants knowledge in Renewable Energy Technologies, business models and bankability requirements of green energy projects. It intends to support the definition of comprehensive business or project concepts to foster market development of Renewable Energy Technologies in Africa.

Blended virtual format

Blended Virtual Format - Increasing knowledge and networking through online training scholarships, a virtual alumni conference and access to international green energy conferences.

ANSAP will provide online trainings, live webinars and access to green energy conferences with the aim to transfer knowledge in project and business plan development for green energy projects and promote peer and expert exchange.

By finishing the online courses, participants will have the opportunity to continue on a mentorship programme for green energy project development and present their project ideas to the Alumni-Network community and experts. Selected participants will be invited to join regional conferences in Green Energy.





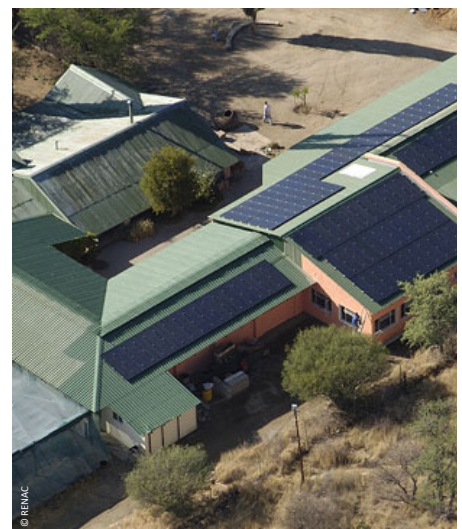
Beyond the online training, the ANSAP programme includes workshops and side-events which give the participant the opportunity to showcase their project or business idea to the community and get more feedback from peers, alumni and others experts in green energy projects.

Virtual Alumni-Network Conference

A virtual Alumni-Network conference will be conducted annually. It will give you the opportunity to present your project and business ideas, meet peers and discuss about market development on green energy in your region. Blended Virtual Format - Increasing knowledge and networking through online training scholarships, a virtual alumni conference and access to international green energy conferences.

Green Energy Conferences

ANSAP will financially support the participation of selected Alumni in regional green energy conferences. The selected alumni shall participate in workshops or side-events that will give them the chance to gain more knowledge or make contacts to support their project ideas



2 RENAC Online Academy

Self-study material

1 Text and Images

Courses are structured in small, illustrated units of instruction; learners are guided through the material step-by-step.

2 Videos

Video lectures explain some of the most important topics in a visual and entertaining way.

3 Tests

Many self-assessment tests within each course help participants to test their knowledge.

Features

Interactive
learning
platform



Stream /
download videos



Self-testing /
online exams



Live
lectures



Forum for
participants



Integrated
glossary

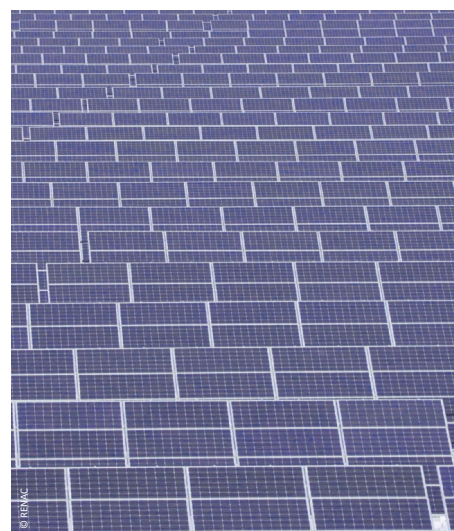


Feedback
questionnaires



Webinar in English

Live lectures held by Renewable Energy and Energy Efficiency experts will be held in English.

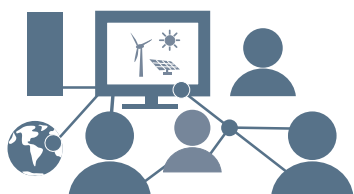




Extensive support

1 Forum

Support and communication take place in a discussion forum. RENAC monitors the forum constantly. RENAC experts are ready to give assistance and discuss the course topics.



2 Assignment

Participants will be asked to develop assignments around a business plan for a decentralized green energy project or business idea. The course includes guidelines and templates and the support of an expert during live webinars.

Participants with the best business plans will have the chance to acquire expert mentoring support and present its projects to possible partners or financiers.



3 Live lectures

Participants should attend the live lectures (webinars). These are conducted by renewable energy experts. During and after the presentation, participants are invited to discuss in the live chat.



Certificate

All participants who score above 70% of the final exam and present all assignments will receive a RENAC Certificate.



3 ANSAP Online training programme structure

The 2021 online training programme is designed to prepare the participant for the definition and development of a project or business idea in small green energy. It includes concepts on project life cycles, structures and financials of green energy projects.

The programme requires a study dedication of approximately 8 to 10 hours a week with a total duration of 12 weeks. It requires the presentation of exercises and a final exam to receive a RENAC certificate.

It is divided into three modules which contain mandatory courses with photovoltaic and energy efficiency concepts and business-oriented webinars to support the development of decentralized green energy projects.

Module 1

Introduction to RE and EE Project concepts

Module 2

Understanding the potential in small-scale Green energy projects

Module 3

Understanding the financials of Green energy projects

Participants can choose from two focus paths for the training:

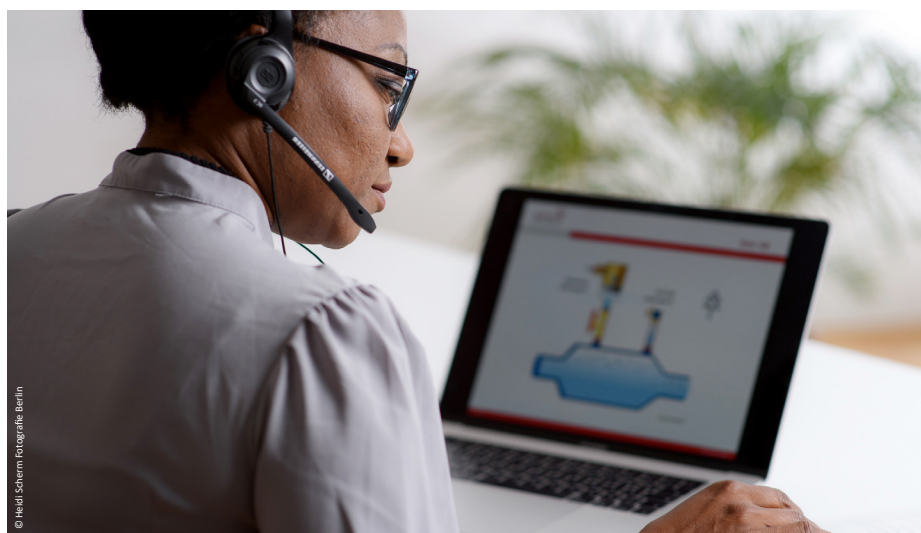
Decentralized Renewable Energy: focuses on concepts of photovoltaics off grid systems

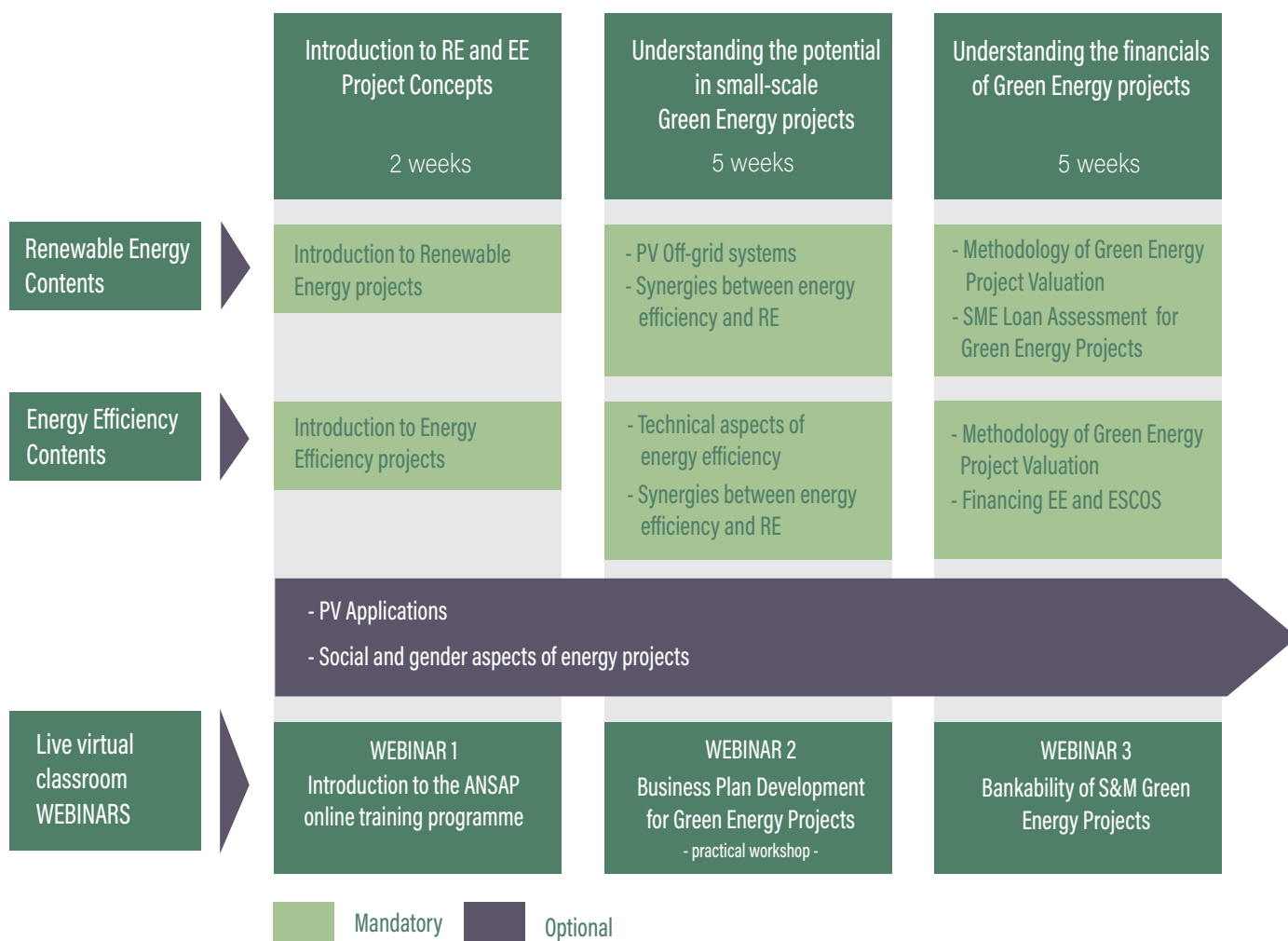
Energy efficiency: focuses on technical aspects of energy efficiency and the synergies between renewable energies and energy efficiency.

Two transversal optional courses on photovoltaic applications and social and gender aspects of energy projects will be available along the whole duration of the training programme.

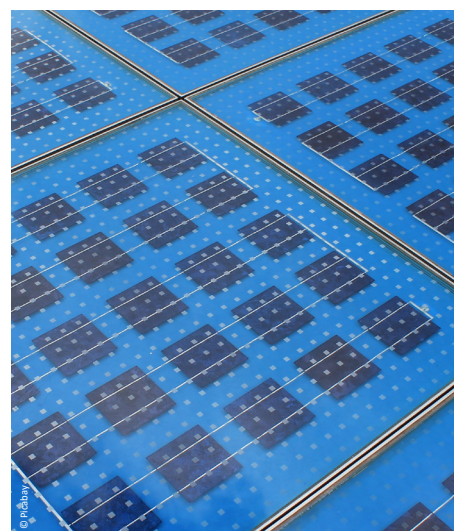
These courses will be complemented with three live webinars on business plan development and bankability of green energy projects to guide participants develop their business or project idea.

All courses will be accessible through a personalized account in RENAC's Online Academy.





To secure efficiency in the whole training programme, participants will be able to continue into the expert mentoring phase after successfully finishing the online training programme.



4 Learning objectives and course content – Renewable energy courses

Introduction to renewable energy projects

After completion of this course, participants will be able to:

- Illustrate the steps and tasks of a project life-cycle of RE projects
- Compare different public and private perspectives onto RE projects
- Assess project attractiveness with standard methods

Content

Introduction

- General characteristics of a project
- The project realization cycle
- The average lifetime of RE projects
- End of life considerations
- Typical players in RE projects

Financial aspects of RE projects

- ‘Investment’ and ‘Investment appraisal’, investment decision
- Assessing an investment’s attractiveness
- Financial management tasks
- Cost structure of RE projects

Non-financial aspects of RE projects

- Public and private investment appraisal, public support mechanisms
- Externalities of RE projects
- Translating external, non-monetary effects





PV off-grid systems



After completion of this course, participants will be able to:

- Distinguish different applications and configurations for off-grid PV systems
- Name and explain the required components for off-grid PV systems
- Manage the design, sizing, installation and commissioning of an off-grid PV system
- Analyse the economic viability of off-grid PV systems

Content

Application

- Typical applications, typical load
- Application example: telecommunications, solar water pumping
- System configurations (Small off-grid PV system and micro/mini- grid configurations, "Fuelsaver concept")

System components

- PV modules and charge controllers: function and types, selection
- Maximum Power Point Trackers (MPPTs)
- DC- DC converters
- Inverters: Battery inverters, inverter-chargers for DC-coupled off-grid system and AC- coupled off-grid systems, grid-connected PV inverters in off-grid systems
- Batteries: Battery capacity, rate of discharge (C-rate), depth of discharge (DoD), cycle life
- Lead- acid battery types and their properties and configurations
- Mounting structure requirements for off-grid systems, mounting system types

System design and sizing

- General steps in system design and sizing
- Load assessment, solar resource assessment
- Orientation, tilt angle, shading
- Design concept and sizing methodology

Installation, commissioning, operation and maintenance

- PV module installation: good practice
- Cable sizing and installation: good practice
- Earthing/grounding: good practice
- Fuses and circuit breakers: good practice
- Battery installation: good practice
- Lightning/surge protection
- Inspection, testing and commissioning
- Operation and maintenance
- Monitoring devices

Economics of off-grid PV systems

- System costs
- Example: unit electricity cost of an off-grid PV system
- Viability of off-grid PV and advice to policy maker

Methodology of project valuation



After completion of this course, participants will be able to:

- Describe the principal setting of a renewable energy project, incl. relevant stakeholders, development processes
- Project appraisal structure
- Explain the most important economic parameters used in renewable energy project planning
- Perform some example calculations of the basic economic parameters, e.g. the internal rate of return (IRR)

Content

Introduction to REP financing options

- REP financing options, equity and debt capital
- Corporate (balance sheet) and project financing, corporate financing versus project financing
- Special financing considerations for REPs, example REP financing structures

REP risks and uncertainties

- Introduction to REP risks and uncertainties
- The concepts of risk and uncertainty in investment appraisal
- Typical sources of risk and uncertainty in REPs, general risk assessment instruments
- Mark-ups / Sensitivity analysis / Simulation / Scenario analysis
- Risk reduction in practice – ‘operational treatment of risk

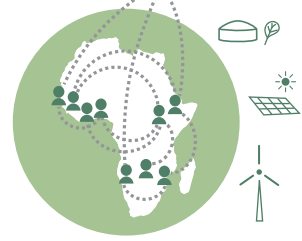
Basic financial principles

- Introduction to basic financial attractiveness
- “Profit” as indicator of project attractiveness? “Cash flow” as proper indicator of project attractiveness
- Time value of money: interest, components, the concept of discounting
- Interest and cost of capital, weighted Average Cost of Capital (WACC)

Financial performance indicators

- Introduction to financial performance indicators
- Net Present Value (NPV); internal Rate of Return (IRR)
- Simple Payback (SPB) and discounted Payback (DPB)
- Benefit-to-Cost Ratio (B/C)
- Levelized Cost of Electricity (LCOE)
- Debt Service Cover Ratio (DSCR)





Loan assessment for financing small-scale green energy systems

After completion of this course, participants will be able to:

- Explain the main aspects of a loan assessment for financing a green energy system
- Propose factors and financial ratios required to make a positive decision to disburse a green energy small and medium enterprise (SME) loan

Content

S&ME Loan Assessment

- Qualitative assessment
- Quantitative assessment

Investment Project Assessment

- Renewable Energy (RE) applications in S&ME
- Loan purpose
- Project plan
- Impact of the investment project on the SME
- Project rentability

Assessment of Loan Securities

- Collateral
- Credit guarantee

Risk Management

- Risk identification
- Risk mitigation



Energy efficiency courses

Introduction to energy efficiency projects

After completion of this course, participants will be able to:

- Define the character of energy efficiency projects
- Analyse drivers and barriers for energy efficiency projects
- Assess the relevance of energy efficiency in different economic sectors in the context of climate change
- Demonstrate principles of energy efficiency finance options and the role of providers of finance

Content

Setting the scene - energy efficiency and the global experience

- International importance of energy efficiency
- Benefits of energy efficiency
- Stakeholders in energy efficiencies
- Energy consumption by sectors
- Drivers of energy efficiency
- Barriers to energy efficiency

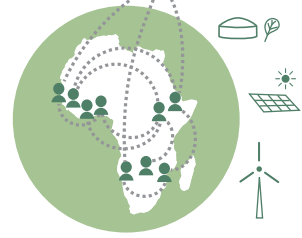
Definitions, standards and technical terms

- Definition of energy efficiency
- Energy efficiency projects
- Additional technical information

Financing of energy efficiency projects

- The economics behind energy efficiency projects
- Role of providers of finance in a green economy
- Internal consequences for POF when financing energy efficiency
- Special features of energy efficiency finance
- Barriers to energy efficiency finance
- Financing options





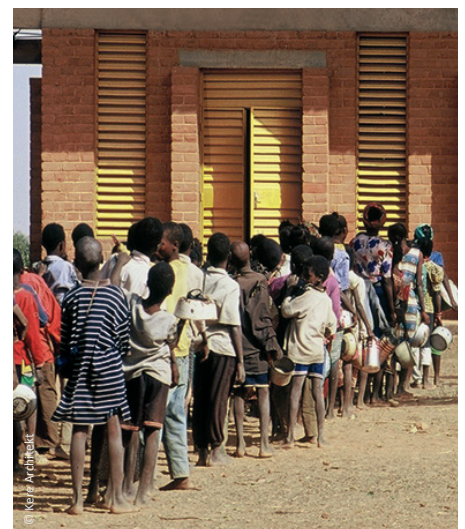
Technical aspects of energy efficiency

After completion of this course, participants will be able to:

- Demonstrate the basic functions of cross-cutting technologies in industry
- Determine areas of application for cross-cutting technologies in industry
- Prepare technical measures to enhance energy efficiency with regard to the respective cross-cutting technology
- Classify the saving potential of the technical measures to enhance the energy efficiency

Content

- Heating
- Cooling
- Electric Drives
- Pumps
- Compressed Air
- Ventilation
- Lighting
- Sectoral approaches



Synergies between Energy Efficiency and Renewable Energy

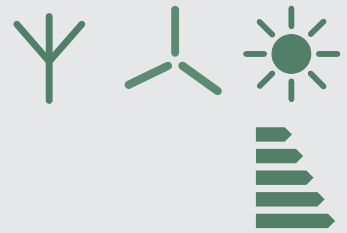
After completion of this course, participants will be able to:

- Recognise the relationship between energy efficiency (EE) and renewable energy (RE)
- Name technologies that promote synergy between EE and RE
- Describe the methodology to identify valuable measures for creating synergy
- Name indicators to trace the linkage between EE and RE
- Explain the meaning of different graphs showing concepts related to EE and RE

Content

Introduction

- Framing the link between EE and RE
- Synergies from implementing EE and RE measures at the same time
- A methodology to measure synergies between EE and RE
- Examples of synergy between EE and RE
- Indicators to track synergy between EE and RE
- Interpretation of various graphs
- Decomposition analysis for EE





Methodology of project valuation

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- Debt Service Cover Ratio (DSCR)



Financing energy efficiency projects and ESCOs



After completion of this course, participants will be able to:

- Distinguish the nature of energy efficiency projects from conventional investments
- Organise an energy efficiency project assessment from the perspective of a bank
- Analyse different concepts of ESCOs as a new innovative business model in the energy sector
- Determine the special aspects of ESCO financing

Content

Energy efficiency vs. conventional investment finance

- Energy flows and energy balance of buildings (heating, cooling)
- Selecting the right financing instrument
- Characteristics of energy efficiency project finance
- Attractiveness of energy efficiency project financing for POF
- Risks of energy efficiency finances

Appraisal of client/investor

- Energy efficiency assessment of the investor/client
- Questions to assess a client's energy management
- Financial incentives for energy efficiency in buildings
- More than energy efficiency: certificates of sustainability

Financial appraisal

- Estimated project costs
- Sources of finance
- Financial performance
- Financial viability parameters
- Static models
- Dynamic models
- Designing financial investment scenarios

Monitoring

- Monitoring tools
- Precautionary measures

Energy service companies

- Introduction to energy service companies
- Energy supply contracting
- Energy performance contracting
- Financing ESCO investments
- Advantages and barriers of ESCOs
- ESCOs in Asian countries

Appraisal of ESCO

- Special features of ESCOs
- Appraisal of an ESCO's business experience and conduct
- Appraisal of technical skills
- Financial appraisal of an ESCO
- Summary of ESCO appraisal



Optional courses

PV - Applications



After completion of this course, participants will be able to:

- categorize different PV system applications
- select the correct system configuration and size the necessary components according to the chosen application
- analyses the impact of different parameters on the PV system power output and
- evaluate the economic aspects of PV systems incl. energy yield, metering options and cost

Content

Application

- PV system categories/application
- Grid -connected configuration
- Off -grid configuration

Components of a PV system

- Overview of PV cell types
- PV modules
- Introduction to inverters
- Introduction to mounting structures

Physical aspects

- PV cell power output
- Electrical characteristics and the I -V curve
- Factors affecting power output

Economic aspects of PV systems

- Resource assessment
- Definition of performance ratio
- Energy yield calculation and example
- Metering options
- Investment cost of a PV system
- Price tendencies for modules and inverters
- Operating costs



Social and Gender Aspects of Energy Projects

After completion of this course, participants will be able to:

- Discuss how gender considerations have been addressed in the energy sector and identify elements that are applicable to their own project.
- Define different gender concepts as well as identify gender analytical tools.
- Identify entry points and opportunities for addressing gender in renewable energy projects.
- Recognize strategies designed for addressing gender in thematic clusters within the renewable energy sector.

Content

The gender and Energy Nexus

- Energy interventions and their differentiated impacts
- Visualizing how to increase benefits for women in RE projects
- Evolution of gender considerations in the energy sector

Introduction to gender concepts

- Gender is a social construct
- Gender analysis
- Action on gender considerations

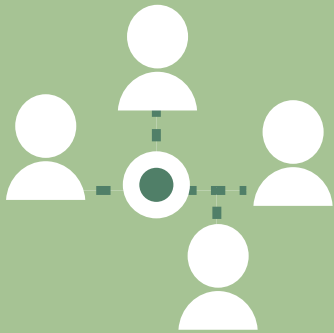
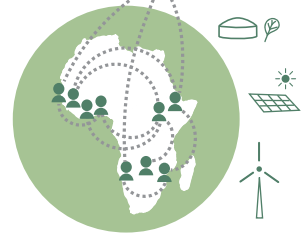
Addressing gender considerations in the project cycle

- Mainstreaming gender in energy projects
- Addressing gender in project design
- Addressing gender in project planning
- Addressing gender in project in project implementation
- Gender indicators in energy projects

Gender considerations in energy interventions: notes on strategies

- Framing the conversation
- Recognizing gender needs and actions in energy policy development
- Collecting women's and men's voices in community consultations
- Addressing social and gender impacts of large-scale infrastructures
- Women's participation in the renewable energy workforce





Alumni Portal

COME AND JOIN OUR ALUMNI NETWORK!

- Find and share information with fellow Alumni!
- Acquire and exchange knowledge on Green Energy!
- Get a mentoring partner to develop your business Idea!
- www.renac.de/projects/current-projects/alumni-network-gruene-buergerenergie

For more Information about the initiative green people's energy for Africa go here: <https://gruene-buergerenergie.org/en/>

APPLY HERE

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Impressum

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