# Project Experience in Sustainable Energy

- **Selected Projects** -

## Regional (Egypt, Jordan, Morocco, Tunisia)

**SEMED Energy and Resource Efficiency Programme for Corporate Sector - Energy Audit for the SEMED Region**  
(FC588/ESEM/2012-10-18F)

- **2012 - 2014**
- **Activities:**
  - Energy/resource efficiency audits
  - Energy management assessments
  - Preliminary feasibility studies for energy and resource efficiency projects
  - Assessment of carbon credits potential
  - Assistance for the establishment of energy efficiency management systems (EEMS)
  - Assistance in project implementation
  - Assistance for ISO 50001 certification
  - Training programme
  - Technical and commercial studies

**Client:** European Bank for Reconstruction and Development (EBRD)

**Financing:** European Bank for Reconstruction and Development (EBRD)

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## Tanzania

**Energy SME Support in Sub-Saharan Africa Project: Feasibility Study of Six Mini-Hydropower Projects (MHP) in Tanzania**

- **2013**
- **Activities:**
  - Site investigations including hydrological, geological, topographical, and meteorological surveys
  - Identification and evaluation of different design options, and preparation of feasibility design for hydropower plants and grid connection or power distribution (mini-grids)
  - Preparation of cost estimates for implementation, and establishment of risk management matrix
  - Determination of technical feasibility
  - Capacity building

**Client:** GVEP International

**Financing:** World Bank

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## Ukraine

**Master Plan for the South Ukraine Regional Transmission Network Development including Solar and Wind Power Integration**

- **2012 - 2014**
- **Activities:**
  - Demand forecast and generation expansion plan
  - Review and assessment of existing network planning and operation in view of solar and wind power integration (grid code, operation, load dispatch & wind forecast, control & metering systems)
  - Network planning (110 kV and above) of South Ukrainian grid for solar and wind power integration (load flow, N-1, stability analysis, mitigation measures) and related training
  - Geographical Information System (GIS)
  - Master Plan preparation with selection and definition of two priority investment packages
  - Project preparation of the two packages (grid stability analysis, technical specifications, BoQ, line route review, technical, economic and financial analyses,
ESIA, project feasibility, project tender documentation)

**Client:** NPC Ukrenergo

**Financing:** European Bank for Reconstruction and Development (EBRD)

**Hungary, Poland, Romania, Slovakia**

**"Green Initiative" - Consultancy Services in Support of EU Programmes on Energy Efficiency (TA 2012038 RO GIR)**

**2012 - 2013 Activities:**
- Support to marketing and awareness raising for investments in sustainable energy projects in Poland
- Training and capacity building to project financing institutes, local engineers and SMEs
- Support to sub-project origination processes and preliminary screening
- Establishment of pre-approved small-scale sub-projects for Poland
- Local project management and administration for Poland
- Lead on engineering activities for all sub-projects in Poland, and contribution to this work in other countries
- Sub-project preparation and development of procedures and forms to ensure their eligibility, i.e. energy assessments, energy audits

**Client:** European Investment Bank (EIB)

**Financing:** European Investment Bank (EIB)

**Supraregional Carbon Project and Asset Development Facility (Framework Agreement No. FC563/EBSF-2012-05-65F)**

**2012 - 2015 Activities:**
- Carbon project development and marketing
- Regulatory Support, policy review and legal structuring in relation to carbon projects or assets
- Streamlining carbon finance in EBRD project finance appraisal

**Client:** EBRD on behalf of the EBRD Shareholder Special Fund

**Financing:** European Bank for Reconstruction and Development (EBRD)

**India**

**Pre-Study "Energy Efficient Cooling in India"**

**2012 Activities:**
- Brief market and technology analysis for cooling technologies in India
- Delimitation of technologies and sectors for the main study
- Recommendations for the ToR of the main study

**Client:** Kreditanstalt für Wiederaufbau (KfW)

**Financing:** Kreditanstalt für Wiederaufbau (KfW)

**Nigeria**

**Framework Agreement for the Development of up to 150 MWp Solar Energy in Nigeria**

**2012 - 2015 Activities:**
- Preliminary site selection
- Investigation of grid connection possibilities
- Pre-feasibility studies for each site
- Support to the preparation of work plans, schedules and budgets, and provision of all relevant documentation
- Support to the projects with local knowledge and contacts, local subcontracting, and trouble shooting
Tunisia

Implementation of Studies, Diagnostics, and Training and Dissemination Services for the ANME (Tunisian National DSM Agency) within the Framework of the “Energy” Component of the PEE (Environment - Energy Programme)

2011 - 2013

Activities:
- Training and sensitization activities for DSM project responsibles and financing agencies
- Feasibility studies to support the establishment of bankable documents
- Studies, seminars and workshops on the financing of DSM
- Training and studies on regional DSM strategies
- Support to the ANME for the registration of a DSM project
- Identification and promotion of new energy efficiency measures in the industrial sector
- Training, elaboration of guides and studies for companies in the thermal insulation and solar water heating business, and for the air conditioning, construction material and solar thermal sectors

Client: Agence Nationale pour la Maîtrise de l’Energie (ANME - Tunisian National DSM Agency)
Financing: European Commission

Nigeria

Nigerian-German Energy Partnership: Support to the NAPTIN Training Institute - Training of Trainers in the Field of Renewable Energies and Design & Construction of a Hybrid Power Plant (22 kW)

2012

Activities:
- Training of trainers in the renewable energy field (selection of participants, curriculum development, delivery of training)
- Construction of a small training and demonstration power plant (selection of site for a hybrid wind/solar power plant, O&M scheme, purchasing agreement, planning, construction and commissioning of the pilot plant)
- Introduction of solar energy into the academic program of the Yola Technical University (curriculum development, training of lecturers, delivery of the seminar)
- Addendum 1: Preparation of technical specifications for a hybrid demonstration plant (2 x 6 kW wind turbines, 10 kW PV installation): basic engineering and technical specifications
- Addendum 2: Construction supervision for the hybrid demonstration plant

Client: National Power Training Institute of Nigeria (NAPTIN)
Financing: Deutsche Gesellschaft für internationale Zusammenarbeit (GIZ)

Nigeria

Programme for the Promotion of Power Production Via Renewable Energy, especially Hydropower - Expert Opinion on the Proposed 20 MW Kiri Dam Hydropower Plant

2011

Activities:
- Technical advice to a delegation of KfW during their project appraisal mission
- Compilation of an investigation report on general technical aspects of the proposed plant (size of the proposed HPP, dam safety and environmental issues), especially appraisal of technical options for power evacuation (transmission line, location of power house, etc.)

Client: KfW Entwicklungsbank
Financing: Kreditanstalt für Wiederaufbau (KfW)
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<thead>
<tr>
<th>Country</th>
<th>Description</th>
<th>Activities</th>
<th>Client</th>
<th>Financing</th>
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<tr>
<td>Kenya</td>
<td>Feasibility Study for Development of Grid-Connected Solar Power Plants (160 MWP)</td>
<td>Review of data and reports to identify potential sites, Review of suitable PV and CSP technologies, Detailed feasibility study for top-ranked sites, Conceptual design for 3 pilot plants, Knowledge transfer programme, Project management and reporting</td>
<td>Kenya Electricity Generating Company Ltd. (KenGen)</td>
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<td>Slovakia</td>
<td>EU / EBRD Municipal Finance Facility - Energy Efficiency Window (MFFEE) - Verification Consultant</td>
<td>Verification of implemented municipal infrastructure and building projects in the field of energy efficiency against technical documentation, site visits, Approval of grant payments to partner banks and sub-borrowers</td>
<td>European Bank for Reconstruction and Development (EBRD)</td>
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<tr>
<td>EU, Romania, Russian Federation, Ukraine</td>
<td>Developing and Introducing Leasing Products under the EBRD's &quot;Sustainable Energy Financing Facilities&quot; (SEFF)</td>
<td>Investigation of leasing practice for energy efficiency / renewable energy (EE / RE) equipment in the EU, Identification of EE/RE equipment most suitable for leasing in EBRD SEFF countries, Development of strategies to promote leasing as financing tool for EE/RE in SEFF countries, Development of marketing strategies and tools, Development of a calculation tool to compare cost/benefit of loan vs. lease financing, Development of a pilot business model for sustainable equipment financing</td>
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Support in capacity building of local leasing companies to develop a market for sustainable energy equipment leases

**Client:** European Bank for Reconstruction and Development (EBRD)

**Financing:** European Bank for Reconstruction and Development (EBRD)

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**European Union:** Austria, Germany, Greece, Netherlands

**PV MIPS - Photovoltaic Module with Integrated Power Conversion and Interconnection System**

**2004 - 2012 Activities:** Investigation (development, testing) of PV modules with module-integrated power inverters aiming at the development of cost-efficient PV modules for grid connection.

**Client:** European Commission

**Financing:** European Commission

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**Bangladesh**

**German Financial Cooperation with Bangladesh: Renewable Energy - Solar Home Systems II**

**2009 - 2011 Activities:**
- Performance monitoring of the partner organisations
- Technical monitoring of SHS installations
- Financial monitoring of the revolving fund for micro-credits
- Investigation of environmental aspects
- Reporting

**Client:** Infrastructure Development Company Ltd. (IDCOL), Dhaka

**Financing:** Kreditanstalt für Wiederaufbau (KfW)

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**Poland**

**Polish SME Sustainable Energy Financing Facility (PoISEFF) - Project Consultant**

**2010 - 2013 Activities:**
- Marketing and awareness raising for investments in sustainable energy projects
- Training and capacity building to project financing institutes, local engineers and SMEs
- Establishment of pre-approved small-scale projects
- Support to the project origination processes and preliminary screening
- Project preparation (eligibility check, support to subprojects)
- Project management and administration

**Client:** European Bank for Reconstruction and Development (EBRD)

**Financing:** European Bank for Reconstruction and Development (EBRD)

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**Mali**

**Consulting Services for Preparatory Studies for the Implementation of the “Energy Efficiency and Demand-Side Management” Component**

**2010 - 2011 Activities:**
- Establishment of an electricity consumption profile of EDM's customers
- Assessment of energy saving lamps’ (ESL) distribution in Mali
- Definition of technical characteristics and norms and standards for ESLs
- Elaboration of a public awareness campaign
- Detailed design for the acquisition of ESLs and for the rehabilitation of public lighting
Mexico

Engaging the Banking Sector in Financing Sustainable Energy in Mexico (Overall Project): Subtask: Elaboration of a Tool to Assess the Ecological Benefit of Energy Efficiency Investments in the Hotel Sector (CO2 Benefit Calculator)

2009 - 2010

Activities:
- Create an IT-based tool to calculate the ecological benefit in respect to GHG emissions (related to investment costs and overall emissions) of any suggested EE measure

Albania

Evaluation and Business Plan Supervision of Hydropower Plants

2010 - 2013

Activities:
- Framework Contract:
- Assessment of documentation handed in by loan applicants (elaboration of guidelines for application documents; check of documentation)
- Evaluation of the planning data base (hydrological data, topographical and geological survey, legal situation)
- Evaluation of the technical concept
- Evaluation of the financial analysis (annual production, investment cost, assumptions, sensibility and risk analyses)
- Evaluation of the implementation plan
- Quarterly supervision of works
- Reporting to the Bank

Senegal

Study on technical, economic and financial Aspects of the regulatory Framework for Producing Electricity from renewable Energies in Senegal

2010

Activities:
- Analyses (determination of the theoretical and technical potential for producing electricity from renewable energies, inventory of the electrical network)
- Determination of development conditions for the production of electricity from renewable energies (production costs, interconnection costs, development requirements, study on the impact of the proposed measures, study on existing technical interconnection norms)
- Elaboration of concrete incentive measures and of interconnection prerequisites

Mongolia

Energy Efficiency Program I - New Turbine for Darkhan Thermal Power Plant (DTPP)

2009 - 2013

Activities:
- Preparation of the project
- Elaboration of tender documents
- Assistance in bid evaluation and evaluation reports
- Assistance in contract negotiations and contract award
- Assistance in checking and approval of contractor's drawings and specifications
- Assistance in the coordination and supervision of site activities, commissioning activities, including AQ and QC procedures, good quality of erection works, eventual insurance issues
- Organisation of as-built drawings and O&M manuals
- Checking and approval of suppliers' invoices

**Client:** Darkhan Thermal Power Plant (DTPP), and Ministry of Mineral Resources and Energy, Ulaanbaatar  
**Financing:** Kreditanstalt für Wiederaufbau (KfW)

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**Bangladesh**  
**Consulting Services for Energy Efficiency Program II:**  
Construction of new 132/33 GIS substations, a new 132 and 33 kV cable system and a 4 circuit 132 kV transmission line  

**2009 - 2013**  
**Activities:**  
- Assistance in evaluation of bids, contract negotiations and contract award  
- Approval of design, final design and as-built documentation  
- Participation in FAT  
- Supervision of construction  
- Budget control and review of invoices  
- Monitoring of training programme  
- Assistance in establishing an O&M concept  
- Assistance in commissioning and during defects liability and warranty period

**Client:** Dhaka Power Distribution Company Ltd. (DPDC), Dhaka  
**Financing:** Kreditanstalt für Wiederaufbau (KfW)

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**Cameroon**  
**Consulting Services for AES SONEL Capital Investment Plan. Owner's Engineer Services for:**  
New construction, rehabilitation and extension of transmission infrastructure (90-225 kV)  
Rehabilitation works on secondary networks and the distribution backbone (15-30 kV)  
Refurbishment of hydropower plants (units, dam and reservoir civil structures)  
Overhauls, capacity reinforcement and construction of HFO and diesel power plants

**2009 - 2010**  
**Activities:**  
- Project management  
- Contribution to project feasibility studies and to the elaboration of bidding documents  
- Construction schedules  
- Construction management, site supervision, contracts administration  
- Construction health and safety, quality assurance  
- FAT and related reports, commissioning and testing  
- As-built documentation, O&M manuals  
- Know-how transfer, training on the job

**Client:** AES SONEL, Douala  
**Financing:** AES SONEL

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**Nigeria**  
**Consultancy Services for Site Identification, Feasibility Study and Design of Solar PV System in the South East Zone of Nigeria**  

**2007 - 2008**  
**Activities:**  
- Selection of rural communities for solar PV application  
- Development of design for solar PV applications
Determination of power needs for each solar PV application
Preparation of technical specifications
Development of an O&M and sustainability programme
Cost estimate
Development of a project management framework
Environmental and social impact assessment
Development of a business model

Client: Rural Electrification Authority, Abuja
Financing: Rural Electrification Agency (REA)

Burkina Faso Rural Electrification Study

2006 - 2008 Activities:
- Diagnostic
- Study of supply options
- Investigation into legal and institutional framework
- Demand analysis for the studied sites
- Preliminary technical study
- Organisational study
- Financing and tariff study
- Socio-environmental impact study
- Cost estimation
- Financial and economic feasibility study
- Organisation of a validation seminar
- Detailed project planning
- Development of a GIS

Client: Ministère des Mines, des Carrières et de l'Energie
Financing: African Development Bank (AFDB)

Mali Rural Electrification Master Plan

2005 - 2009 Activities:
- Data collection
- Design of installations for priority programme
- Preparation of the cartography by means of a GIS
- Planning of MV/LV lines and substations
- Study of organisational and institutional structure
- Economic and financial analyses and calculations
- Risk analysis
- Preparation of business plan
- Demand analysis and demand forecast
- Preparation of tender documents
- Training

Client: Direction Nationale de l'Energie du Ministère des Mines, de l'Energie et de l'Eau, Bamako
Financing: African Development Bank (AFDB)

Mongolia Development of 6 Small Hydropower Plants within the Renewable Energy Programme and Assessment of Wind Power Development Opportunities

2002 Activities:
- Feasibility studies
- Establishment of a hydrological database
- Assessment of wind power development opportunities
### Tanzania

**Improvement of Energy Efficiency by:**
- Rehabilitation of 220 and 132 kV transformers and switchgears in substations of high priority
- Rehabilitation and extension of 33 and 11 kV distribution networks in the regions Mwanza, Kinondoni and South Temeke

**Activities:**
- Planning
- Tender documents
- Evaluation of bids
- Assistance in contract award
- Supervision of construction
- Acceptance tests
- Commissioning
- Training

**Client:** Tanzania Electricity Supply Company Ltd.
**Financing:** Kreditanstalt für Wiederaufbau (KfW)

### Rwanda

**Rehabilitation of the electrical Infrastructure of ELECTROGAZ**
- Rehabilitation of the hydropower stations Mukungwa (12 MW), Gihira (1.8 MW) and Gisenyi (1.2 MW)
- Rehabilitation and extension of the 6.6/30/110 kV substation Mururu I

**Activities:**
- Final design
- Tender documents
- Training

**Client:** Ministère des Travaux Publics and ELECTROGAZ, Kigali
**Financing:** World Bank