

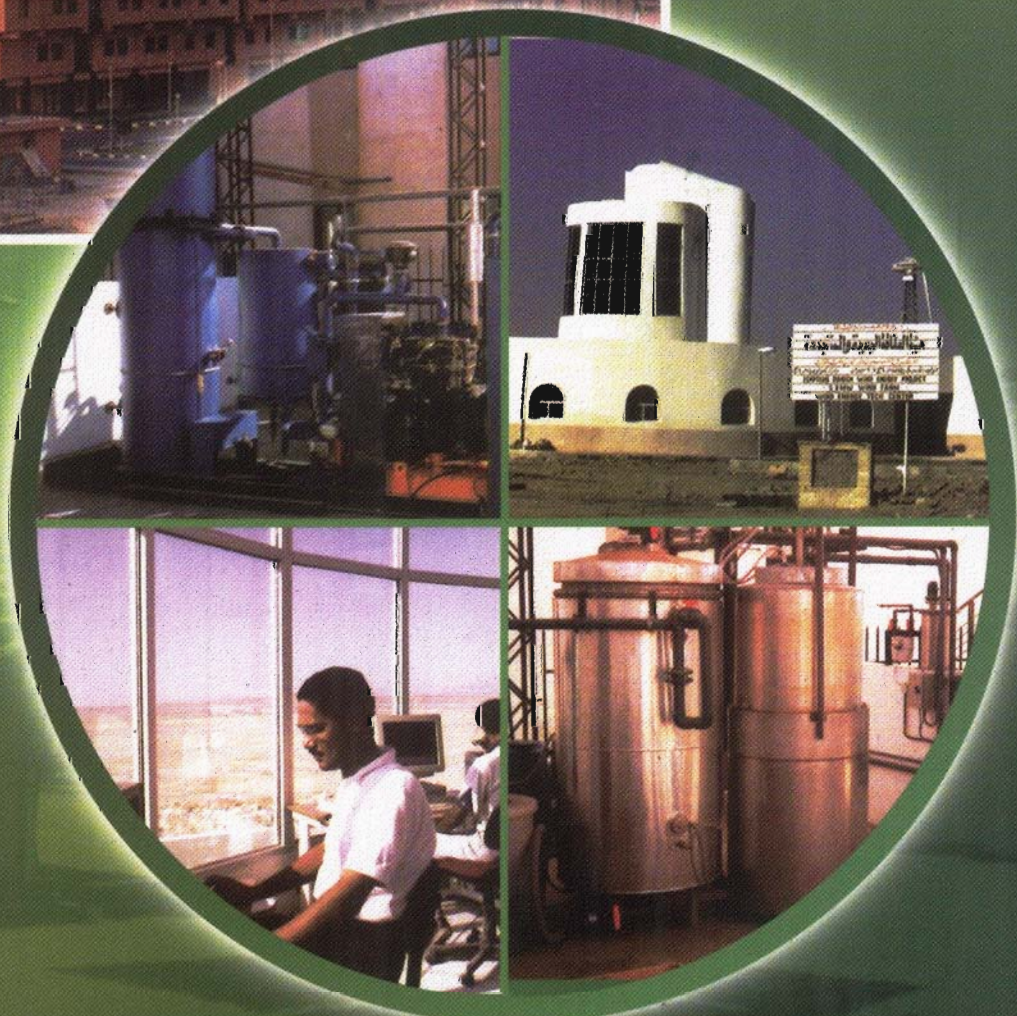
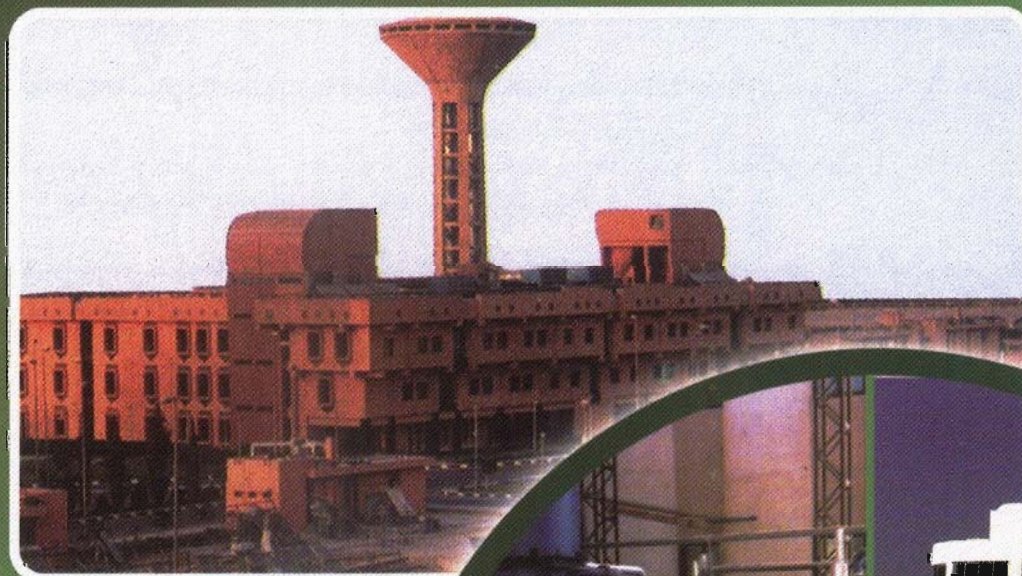


مكتب المستشار الوطني
NATIONAL CONSULTING BUREAU



جمهورية مصر العربية
وزارة الكهرباء والطاقة
مكتب الطاقة الجديدة والمتجددة

PRACTICAL HANDS-ON TRAINING NEW & RENEWABLE ENERGY



1- TRAINING COURSES ON WIND ENERGY

1-1 A program for decision makers “Prospective of wind energy projects”

The course focuses on:

- Wind resources and its availability in the Arab region.
- Site selection criteria for electricity generation wind farms.
- Wind energy technologies, the wind turbines, capacities and operation requirements.
- Examples of some implemented wind farm projects.
- Local requirements for wind farm projects implementation.
- Local and international financing opportunities.
- Technical and economical evaluation of wind farm projects.
- Wind farm projects' environmental and social impacts.
- Policies and procedures for supporting wind energy projects.

1- 2 “Wind Energy Resource Assessment”

The course focuses on:

- Development of wind utilization.
- Wind motion.
- Calculation of wind energy potential and the effect of different parameters.
- The relation between altitude and the wind speed, and factors affecting this relation.
- Measuring tools and equipment , their operations principles and development.
- Data acquisition and computer software.

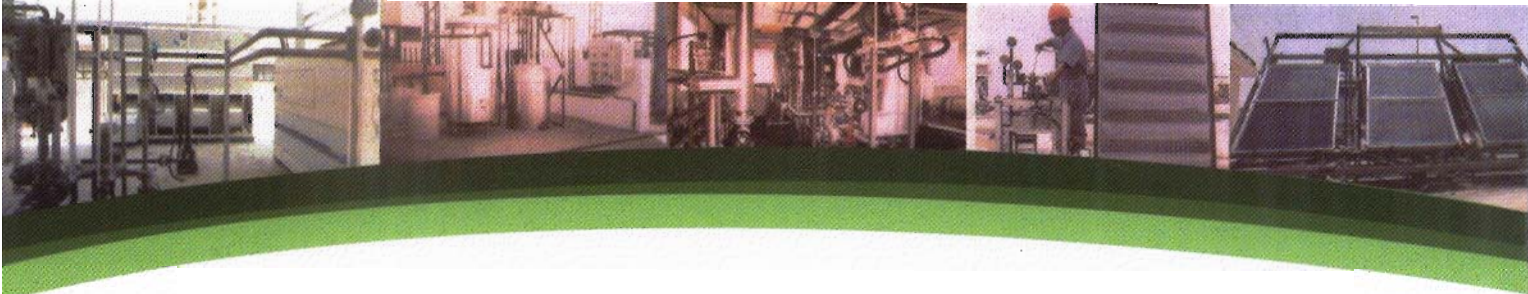


(Some Wind Sources)

1-3 “Wind energy technologies “Present & Future”

The course focuses on:

- Introduction to wind energy and resource assessment.
- Classification of wind turbines (WTs).
- Wind energy systems for electricity generation.
- Factors affecting the performance of WT's.
- Implementation of wind energy projects; phases and requirements.
- O & M and performance evaluation for wind farms.
- Financial, economical and environmental feasibility / impacts of wind energy (WE) projects.



1- 4 “Site’s selection & Design of wind farms”

The course focuses on:

- Selection criteria of suitable sites.
- Budgeting and estimation of WE projects investments.
- Financing opportunities and requirements.
- Preparation of project’s proposals.
- Fundamentals of wind farm design.
- Tender documents preparation.
- Technical and financial evaluation of offers.

Contractual procedures.



1-5 “Technical Evaluation and Economic studies for wind energy projects”

The course focuses on:

- Types and phases of feasibility studies.
- Fixed and running costs of wind energy projects
- Cash flow analysis
- Financial, economical, and sensitivity analysis
- Financial and economical indicators.
- Determination of optimum operational conditions to achieve profitability
- Environmental impacts of wind energy projects.

1-6 “ Installation and construction of wind farms”

The course focuses on:

- Phases of wind farms projects.
- Dealing with technical drawings, schedules and charts.
- Site preparation for erection and installation
- Preliminary and final acceptance tests of WTs/ wind farms.
- Evaluation I analysis of acceptance tests results and preparation of acceptance.
- Procedure for final acceptance and taking over of the wind farm.

1-7 “ Operation and Maintenance of wind farms”

The course focuses on:

- Wind turbine components.
- Spare parts and fundamentals of inventory control.
- Types and description of I maintenance programs.
- Preparation of maintenance reports
- Troubleshooting and recovery.
- Controlling and monitoring the wind farm and turbines’ operation.

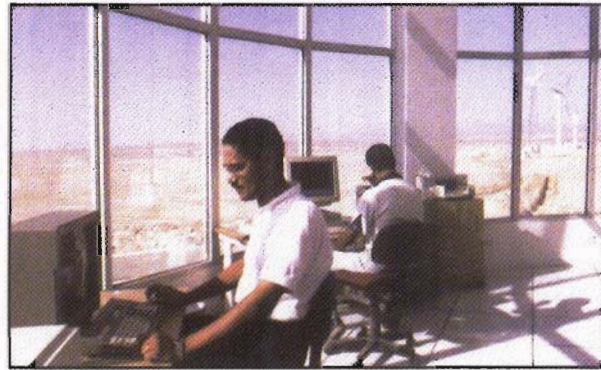


2- TRAINING COURSES ON SOLAR THERMAL TECHNOLOGIES

2-1 “Thermal applications of solar energy”

The course focuses on:

- Introduction to renewable energy.
- Solar radiation
- Solar water heating.
- Solar heating of buildings.
- Desalination (distillation) of water with solar thermal energy.
- Solar thermal electricity generation.
- Solar dryers.
- Solar cooling.
- Solar cookers.



2-2 “Solar water heating (SWH) systems”

The course focuses on:

- Introduction and theory of operation.
- Development of SWH systems.
- System components and the required specifications.
- Natural and forced circulation systems.
- Selective coatings.
- Evacuated tube collectors.
- Thermal performance of SWH systems.
- Design of complete SWH systems.
- Testing and evaluation of complete system



2-3 “Solar Thermal Stations for Electricity Generation “ (STEG)

The course focuses on:

- Introduction and background.
- Thermodynamic cycles applied in STEG systems.
- Technologies used in STEG systems
- Similarities and differences between STEG systems and conventional power plants.
- Special concepts associated with STEG systems
- Measurements and tests.
- Future perspectives of STEG systems.

3-TRAINING COURSES ON PHOTOVOLTAICS

3- 1 “Photovoltaic technology & Applications”

The course focuses on:

- Introduction to Photovoltaic theory & types.
- Photovoltaic cells & panels manufacturing.
- Components of Photovoltaic systems.
- Applications of PV systems.
- Effect of weather conditions on the PV panels performance.
- Qualification test procedure of PV modules.
- Testing PV cells & panels.
- Design of PV systems for different applications.
- Cost calculation & economic evaluation of PV systems.



4-TRAINING COURSES ON BIOMASS ENERGY

4-1 “Biomass Energy Technologies & applications”

The course focuses on:

- General aspects of biomass energy technologies and applications.
- What is the Biomass Energy?
- The thermal conversions (direct combustion — gasification — pyrolysis.)
- Biological conversions (anaerobic digestion for biogas – fermentation for Ethanol).
- The promising technologies for proper utilization of biomass resource in Egypt.
- Technical visit.

4-2 “ Biogas technology”

The course focuses on:

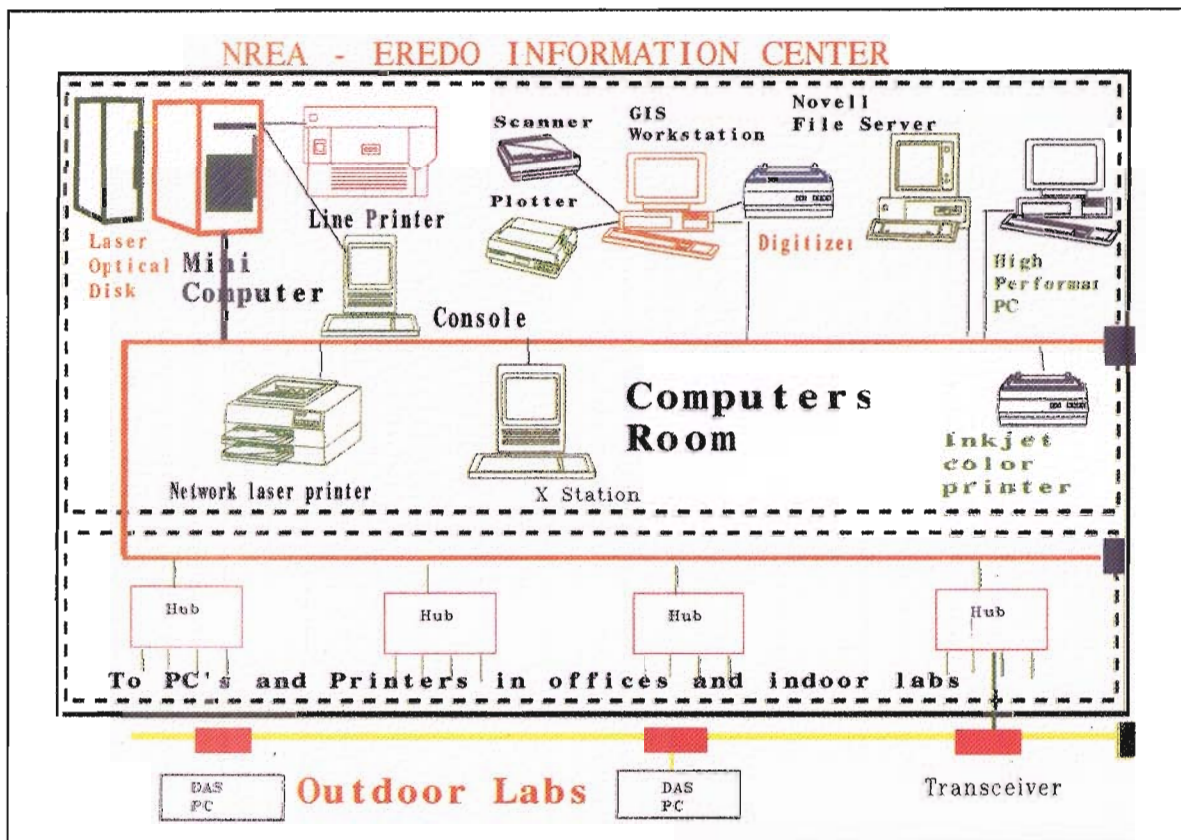
- State of the art of biogas technology (national & international).
- Systems design.
- System start up, operation and maintenance.
- Appliances.
- System testing & evaluation.
- System economics & viability.
- System safety

5- OTHER TRAINING COURSES

5-1 "Energy Conservation

The course focuses on:

- Types of Heat Exchangers (HE).
- Standard test conditions and evaluation of their performance.
- Thermal Insulators and testing methods.
- Concepts and programs for energy conservation.
- Projects of energy conservation using waste heat recovery.
- Auditing.
- Energy conservation in buildings.



CONTACT US:

NCB, Kuwait :

P.O. Box: 5092 Safat, 13051 Kuwait
 Tel.: (+965) 2464794 / 2416273
 Fax : (+965) 2464796
 E-mail : ncbwahib@qualitynet.net

NCB, Abu Dhabi:

P.O. Box : 26356 Abu Dhabi, UAE
 Tel.: +971 2 6658200
 Fax: +971 2 6653303
 E-mail: natconsl@emirates.net.ae

NCB, Cairo :

P.O. Box 5753 - Heliopolis West – Cairo
 Tel. : (+202) 4010783 / 4010746
 Fax : (+202) 2629397
 E-mail: wahibncb@link.net