Kick off meeting - Rome, March 14-18

Royal Scientific Society/National Energy Research Center - RSS/NERC- (Jordan)

Nidal Abdalla
n.abdalla@nerc.gov.jo
Introduction to RSS/NERC

The Royal Scientific Society (RSS) is the largest applied research institution, consultancy, and technical support service provider in Jordan and is a regional leader in the fields of science & technology.
About RSS

Research, Consulting & Projects
Scientific Analysis, Public Health & Safety
Calibration, Conformity & Engineering Maintenance
Public Awareness, Training, Enterprise Creation, & Social Development

Energy, Water, and Environment (EWE)
Industrial and Economic Consultations (IEC)
Construction and Urban Planning (CUP)
Information and Communication Technology (ICT) for Development
About RSS

- **Applied Science**
  - Research, Consulting & Projects
  - Scientific Analysis, Public Health & Safety

- Testing
- Quality
- Outreach

- Energy, Water, and Environment (EWE)
- Industrial and Economic Consultations (IEC)
- Construction and Urban Planning (CUP)
- Information and Communication Technology (ICT) for Development

- Public Awareness, Training, Enterprise Creation, & Social Development
Applied Science

1. ICT
2. Building research center
3. Environment center
4. Bio-safety center
5. Scientific research center

6. **NERC**

National Energy Research Center (NERC) is the department that will be involved in the project.
NERC Activities

Research & Technical Studies

Pilot Project Implementation

Preparation of Solar/wind data base

Know-how transfer

Laboratory Testing of Components

Technical Services & Consultations

Capacity Building
NERC Activities

Research & Technical Studies

Pilot Project Implementation

Preparation of Solar/wind data base

Know-how transfer

Technical Services & Consultations

Capacity Building

Laboratory Testing of Components
Lighting Testing Lab (accredited laboratory)

The lab is capable of testing and verifying energy efficiency class of lamps by measuring luminous flux and input power parameters. The energy efficiency of the lamp is rated in terms of a set of energy efficiency classes from “A” to “G” on the label, “A” being the most energy efficient, “G” the least efficient. The lab has been accredited by Jordan Standards and Metrology Organization (JSMO).
Air conditioner lab: Balance ambient room calorimeter test lab

- The target of this lab to evaluate the needed parameters for energy efficiency label of air conditioners, such as SCOP and SEER.

- The lab is now on accreditation processes.
Air conditioner lab
Washing machine test lab

• The target of this lab to evaluate energy efficiency label for the washing machines.
• The lab is under commissioning status.
Solar water heater laboratory

• It is an Out Door test lab. The target of this lab to evaluate the thermal quality of the solar collector and SWH sys (thermal shock, maximum pressure, etc.). Also, the lab will be used to estimate the thermal efficiency of the collector and whole system. All tests procedures are conforming with local and international standards.

• The lab is under construction.
NERC has 25 well qualified engineers in the fields of Energy Efficiency (EE) and Renewable Energy (RE).

In this project, two seniors from NERC will be mainly involved:

1. Walid Shahin, NERC director.
2. Nidal Abdalla, RE and EE expert.
The expertise of NERC that will be presented in field of urban planning

1. Improving the efficiency of energy use in cities project (Irbid Municipality)
2. Green development at Sahab Municipality project
The expertise of NERC that will be presented in field of urban planning

1) Energy Efficiency & the Urban environment, European MEDA Program.

- This project was implemented for Irbid Municipality, which tilted “Improving the efficiency of energy use in cities”.
“Improving the efficiency of energy use in cities”

The Objectives:

1. Using of geographic information system (GIS) in mapping the lighting network to determine the location of public lighting lamp posts and their transformers and its energy consumption rate.

2. Using GIS for designing and mapping of public transportation and determining their lines and stations.

3. Using efficient lighting systems for the street lightings.

4. Distribution of leaflet guide about transportation maps for the public.
The expertise of NERC that will be presented in field of urban planning

2) Sustainable Urban Demonstration Project – SUDEP (EU project, 2015 - 2016)

• NERC is currently implementing SUDEP project, which is funded by EU. Within this project, a sustainable urban demonstration called “Green development at Sahab Municipality project” is now on going.
Kick off meeting - Rome, March 14-18

Green development at Sahab Municipality project
Green development at Sahab Municipality project

- Promote and implement energy efficiency, energy savings & renewable energy measures at Sahab Municipality buildings and Introduce energy efficient technologies.
- Build capacities of employees of Sahab Municipality in the field of sustainable energy & public awareness of the general public and relevant stakeholders.
Energy Assessments for targeted buildings at Sahab Municipality:

1) Municipality Main Building
   - Lighting Retrofit; replacing fluorescent lighting units to LED lighting units.
   - Install 10 kWp rooftop PV system.
   - Install Solar Thermal Unit.
Energy Assessments for targeted buildings at Sahab Municipality:

2) Cultural Center

- Lighting Retrofit; replacing fluorescent lighting units to LED & External Lighting to LED.
- Install motion & occupancy sensors
- Install Solar Thermal Unit for domestic hot water uses.
Energy Assessments for targeted buildings at Sahab Municipality:

3) Sahab Schools

- 4 Schools are included; two boys schools and two girls schools.

- Energy Saving Measures are:
  1. Lighting retrofit; replacing fluorescent lighting units to LED, External Lighting to LED.
  2. Install Rooftop Photovoltaic systems to cover partially the electric demand of each school
Energy Assessments for targeted buildings at Sahab Municipality:

4) Sahab’s Masjids

➢ 3 Masjids were included.

➢ Energy Saving Measures are:

1. Lighting retrofit; replacing fluorescent lighting units with LED.

2. Install Rooftop Photovoltaic systems to cover partially the electric demand of each Masjid.
Energy Assessments for targeted buildings at Sahab Municipality:

5) Sahab Main Street
   - Replace the street lighting units with LED street lighting units

6) Sahab Public Garden
   - Replace the outdoor lighting units with LED outdoor lighting units

7) Sahab Bus Station
   - Install Street LED lighting units with PV panels
Internship of student and training courses by NERC:

• NERC is one of largest training center in fields of RE and EE, and carrying out the following activities:

• Internship for newly graduated students: Where students introduced the actual work in RE and EE.

• Holding annual pre-scheduled Training courses for the following specific topics:
  – Solar thermal training course
  – Solar PV training course
  – Wind energy training course
  – Energy Efficiency training course.
Thank you
Working group

Please specify what department(s) will be involved in the project

National Energy Research Center (NERC) is the department that will be involved in the project.

Introduce staff members/working group

Present the expertise your organization intends to bring about the project (urban and regional planning, environmental impact assessment, life cycle assessment, landscape design, RES technologies, GIS, SMEs involvement,...)

(more than one slide if necessary)

(Partner organization name and speaker’s name)
Target curricula

Please describe the current curricula provided by your organization on the energy related issues pointing out current orientations and deficiencies (for not HEI partners describe your main activities concerning the energy issues);

Specify what courses/modules within courses/post-graduate course/training courses deal with ENEPLAN issues;

What kind of students (level, course, curriculum) are you planning to involve in task “2.4 - Testing of Cmap 2.0 tool” (10 students for each partner country university are expected)

(Partner organization name and speaker’s name)
Educational models

This question aims to understand the differences among educational models in the involved countries

Please specify:

• structure of the courses (duration, usual number of students per course,…)
• most used “tools” (frontal lecture, laboratories, …)
• availability of e-learning platform or other web based tools
• level of diffusion/use of concept maps
• level of diffusion/use of GIS
• point out if the education model your organization is following can be considered in your country ordinary or advanced/experimental

(Partner organization name and speaker’s name)