NEEREA

National Energy Efficiency and Renewable Energy Action

By Melda Jabbour
Lebanese Center for Energy Conservation (LCEC)

Energy Management in the Lebanese Industrial Sector
July 28, 2016
Movenpick Hotel – Beirut
What is NEEREA?

NEEREA is the National Energy Efficiency and Renewable Energy Action

• A national financing mechanism initiated by the Central Bank of Lebanon in collaboration with the Ministry of Energy and Water, the Ministry of Finance, UNDP, the EU, and the LCEC.

• It was officially launched with the issuance of Circular No. 236 by the Central Bank of Lebanon on 25 November 2010.

• Provides subsidized loans for any type of EE and/or RE projects to private sector entities (individuals, SME’s, industries or corporate bodies).

• Covers loans by any Lebanese commercial bank with low interest rate and a repayment period of up to 14 years, in addition to a grant amount released after the project is implemented.
Architecture of NEEREA

- MEW sets the **strategic guidance** and priority in energy efficiency and renewable energy

- As the national financing institution, BDL sets the **framework of operation** and offers benefits to banks

- MoF defines the **subsidies on interest rates** for the different sectors of the economy

- EU has offered BDL a **grant of 12 Million Euros** to encourage SME’s in applying for NEEREA

- UNDP partnered with BDL to offer **technical support, training, marketing, and awareness raising activities**

- LCEC is the **technical consultant** to BDL, reviewing loan applications, and setting quality control criteria
NEEREA Key Players

- The Central Bank of Lebanon (BDL)
- The interested Client
- An ESCO (Energy Service Company) and/or a supplier
- The Commercial Bank chosen
- Technical Committee (LCEC)

Interested Clients can apply for the green loans at any of the Lebanese Commercial Banks

The received loans requests by the technical support unit to BDL at LCEC till date involve most of the Lebanese Commercial Banks
NEEREA Projects

• More than 391 loans approved with a total of 315 million USD
• Around 54 projects in the pipeline with a total of 13 million USD
• 293 PV projects of a total installed capacity of 10 MWp
• Green building loans took the biggest part with a total budget of 215 million USD
Loan Sizes, Types and Technologies

Types
Existing Facility, New Facility, New Certified Facility

Loan Sizes
• The ceiling of the green loans is 20,000,000 USD
• The current ceiling or envelope of NEEREA in 2015 is around 1 Billion USD subsidized by the Lebanese Government through BDL

Technologies
• Interior and Exterior Efficient Lighting Systems
• Efficient Ventilation and Heating Systems
• Building Envelope Applications
• Solar, Wind, Hydro, Geothermal and Biomass Applications
Investments Under NEEREA

<table>
<thead>
<tr>
<th>Month</th>
<th>Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2013</td>
<td>$-</td>
</tr>
<tr>
<td>May 2013</td>
<td>$50,000,000.00</td>
</tr>
<tr>
<td>June 2013</td>
<td>$100,000,000.00</td>
</tr>
<tr>
<td>July 2013</td>
<td>$150,000,000.00</td>
</tr>
<tr>
<td>August 2013</td>
<td>$200,000,000.00</td>
</tr>
<tr>
<td>September 2013</td>
<td>$250,000,000.00</td>
</tr>
<tr>
<td>October 2013</td>
<td>$300,000,000.00</td>
</tr>
<tr>
<td>November 2013</td>
<td>$350,000,000.00</td>
</tr>
<tr>
<td>December 2013</td>
<td>$400,000,000.00</td>
</tr>
</tbody>
</table>
NEEREA Indicators - Industrial Sector

Distribution of Investments Under NEEREA

Loans Amount Distribution Per Sector

- $176,873,475.61 (57%)
- $93,882,701.54 (30%)
- $15,136,734.18 (5%)
- $4,916,736.35 (2%)
- $3,863,583.95 (1%)

- Residential
- Industrial
- Commercial
- Educational
- Agricultural
- Non-Profit
NEEREA Indicators - Industrial Sector

Distribution of Projects Under NEEREA

Number of Loans Per Sector

- Residential: 78
- Industrial: 22
- Commercial: 7
- Educational: 10
- Agricultural: 6
- Non-Profit: 7

Total Loans: 268
NEEREA Indicators - Industrial Sector

Distribution of Projects Per Governorate

**Per Number of Projects**
- Mount Lebanon: 64%
- Bekaa: 27%
- South: 9%

**Per Loan Amount**
- Mount Lebanon: 81%
- Bekaa: 14%
- South: 5%
NEEREA Indicators - Industrial Sector

Distribution of Projects by Technology

PER NUMBER OF PROJECTS

- PV: 16%
- LED: 16%
- Others: 68%

PER LOAN AMOUNT

- PV: 46%
- LED: 48%
- Others: 6%
## Environmental Benefits – Industrial Projects

<table>
<thead>
<tr>
<th>Number of projects</th>
<th>Granted Loan</th>
<th>Annual Energy Savings</th>
<th>Annual Cost Savings</th>
<th>CO2 Savings in tons</th>
</tr>
</thead>
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<td>22</td>
<td>14 Million USD</td>
<td>7.7 GWh/y</td>
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[Image of industrial buildings with solar panels and the ocean in the background]
About Green Buildings

• On average, green buildings loans have the Silver or Gold certification (loan amount is around 25% or 35% of total project cost)

• Around 220 Million USD of loans are invested in certified green buildings projects (LEED, BREEAM)

• Direct market size exceeds 820 Million USD of construction projects
How it works – Application process

1- Technical Review of NEEREA Loans

- Beneficiary
- Engineering Consultant
- Commercial Bank
- Unofficial Technical Review by LCEC
- Official Technical Review by LCEC
- Central Bank of Lebanon (BDL)

If Loan > 20,000 $: Central Bank of Lebanon (BDL) → Official Technical Review by LCEC
If Loan < 20,000 $: Commercial Bank → Unofficial Technical Review by LCEC

1. If Loan < 20,000 $, go to Commercial Bank.
2. If Loan > 20,000 $, go to Central Bank of Lebanon (BDL).
3. Official Technical Review by LCEC will be conducted for both scenarios.
4. Unofficial Technical Review by LCEC will be conducted for loans less than 20,000 $.
How it works – Application process

2- Site Visit and Review for the EU Grant

Site visit to be done in full coordination with beneficiary, but also the contractor and the commercial bank.
How it works – Application process

3- Loan Amount

<table>
<thead>
<tr>
<th>Nature of Project</th>
<th>Rating</th>
<th>Loan Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Project</td>
<td>Rated or Not Rated</td>
<td>Energy Measure Cost</td>
</tr>
<tr>
<td>New Project</td>
<td>Not Rated</td>
<td>Energy Measure Cost</td>
</tr>
<tr>
<td></td>
<td>Certified</td>
<td>15% of the Total Project Budget</td>
</tr>
<tr>
<td></td>
<td>Silver</td>
<td>25% of the Total Project Budget</td>
</tr>
<tr>
<td></td>
<td>Gold</td>
<td>35% of the Total Project Budget</td>
</tr>
<tr>
<td></td>
<td>Platinum</td>
<td>45% of the Total Project Budget</td>
</tr>
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</table>
How it works – Application process

4- Technical Quality Control - NEEREA Documents

- There are three template reports:

  - The **GREEN** template for EE/RE solutions in **existing facilities**
  
  - The **YELLOW** template for EE/RE solutions in **new facilities (non-certified)**

  - The **RED** template for certified approach in **new facilities (International Certifications such as: LEED, BREEAM, HQE)**
How it works – Application process

4- Technical Quality Control - NEEREA Documents

• How LCEC Templates looks like?

1. Proposal Contents
2. Contact Details of Involved Parties
   2.1 Project Owner Details
   2.2 Consultant Details
   2.3 Bank Details
   2.4 Product Suppliers Details
3. General Description of the State of the New Facility
4. Narrative Description of the Proposed Project
   4.1 Rationale and Objective
   4.2 Presentation of the Proposed Project
5. Loan Request Summary Sheet (EE measures)
6. Financial Analysis Summary (Cost savings and Payback)
7. Upcoming Situation of Energy Consumption
8. Detailed Feasibility Study of the Project
   (Economic, Financial and Environmental Sustainability Analysis)
9. Catalogs and Data Sheets
10. Invoices and Quotations
How it works – Application process

4- Technical Quality Control - NEEREA Documents

- Four LCEC Technical Guidelines:
  - Proposals for Decentralized Solar Photovoltaic Systems (PV) Applications
  - Proposals for Collective Solar Water Heating Systems (SWH) Applications
  - Proposals for Light Emitting Diode Systems (LED) Applications
  - Proposals for Non Certified High Energy Performance Building- Draft
How it works – Application process

4- Technical Quality Control - NEEREA Documents

• How LCEC Guidelines looks like?

1. PV Study Content
2. Introduction
3. Overview of Current Systems in Place
4. Solar PV System Sizing
   (Site and Meteorological Analysis and Sizing the components)
5. Financial Analysis
6. Green House Gas Emissions Reduction
7. Post-Installation Monitoring
8. Conclusions
9. Appendices
10. General Notes

ANNEX
1. Solar Irradiation Data per climatic zone according to TSBL
2. Tilt Angle Conversion Table
How it works – Application process

4- Technical Quality Control - NEEREA Documents

• And eight LCEC Memos:

- Memo M13-1-V 2 entitled “Photovoltaic Battery Sizing Requirements”
- Memo M13-3-V 1 entitled “Post-Installation Monitoring of PV Projects”
- Memo M13-4-V 1 entitled “Site Visit of Approved Projects”
- Memo M13-6-V 4 entitled “Cost Distribution of Photovoltaic Projects”
- Memo M13-7-V 1 entitled “Renewable Energy/Energy Efficiency Projects in New Certified Facilities”
- Memo M15-1-V 1 entitled “The EU Grant Associated to BDL NEEREA Loans”
- Memo M15-2-V 1 entitled “Required standards for PV modules”
How it works – Application process

4- Technical Quality Control - NEEREA Documents

- How LCEC Memos looks like?
How it works – Application process

4- NEEREA Process Time

• This process takes around two months based on the quantity of applications and availability of information

• The LCEC conducts a site visit to check the implemented energy conservation measures of the approved project

• Action would be taken if final execution diverges from original plans
Main Notes

• BDL has “greened” a full chain of players: investors, bankers, real estate developers, architects, engineering consultants, product suppliers, contractors, and house/office buyers

• Loans amount for certified green buildings is expected to double in 2015 (around 400 Million USD)

• The average amount of a certified building loan is around 13.7 Million USD

• Study cost of a LEED or BREEAM can be included in the loan amount

• On average, study cost does not exceed 2% of the loan amount

• In terms of job creation, new type of consulting companies is on the rise
The EU Grant

The Central Bank would, in collaboration with the EU, pay a grant to subsidize loans extended to finance energy projects, with a maximum of $750,000 per project.

15%
- Of the value of the non-subsidized energy related loan

SME’s
- Up to 400 registered employees

LCEC
- Funds are allocated to the project after LCEC approves the technical study proposed.

BDL
- The grant money allocated would be disbursed upon final execution, and after technical validation by LCEC.
Thank You!

The Lebanese Center for Energy Conservation (LCEC)  
Ministry of Energy and Water- Corniche du Fleuve- First Floor- Room 303  
Telephone: 01-569101  
01-565108  
Email: energy@lcecp.org.lb