Sustainable Solutions for PSL in Lebanon

Dr. Joseph Al Assad

The adoption of the NEEAP by the GoL

Current Situation
- Transportation and PSL financial problems
- PSL not directly connected to the Electrical Network
- Used for private lighting
- Installed lights not adjusted for the summer and winter seasons
- Required periodic maintenance

Awareness
- Awareness Campaigns
- Photocell Distribution
- Autonomous Poles
- Centralized PV Stations
- Standardization of PSL Components

Photocell Distribution
- NREs: Photocell for illumination
- EOE: Poles for installation
- CSG: Monthly electricity consumption
- NS: Power consumption

Autonomous Poles
- PV modules for power generation
- Battery for storing power
- Solar Street Lights for illumination

Centralized PV Stations
- Choice of different sources
- Conception of centralized PV stations

Standardization of PSL Components
- Regulations for PSL components
- ISO standards
-Good practice

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Sustainable Solutions for PSL in Lebanon

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The adoption of the NEEP by the GoL

Current Situation
- Transportation and EPI financial problems
- PSL already connected to Electric Network
- Used for private lighting
- Installed lights are not adjusted for the summer and winter seasons
- Included replacement & maintenance

Awareness
- Awareness Campaigns
- Photocell Distribution
- Autonomous Poles
- Centralized PV Stations
- Standardization of PSL Components

Photocell Distribution
- Photocells in PSL
- Autonomous Poles
- Centralized PV Stations
- Standardization of PSL Components

Autonomous Poles
- Photocells in autonomous poles
-liced in the light
- Integrated in the light mounting
- No power for the light

Centralized PV Stations
- Selection of different sources sites
- Conception of centralized PV stations

Standards of PSL Components
- High standards for: EPI, PSL, autonomous poles, centralized PV stations
The adoption of the NEEAP by the GoL

الموضوع: طلب وزارة الطاقة والمياه الموافقة على الخطة الوطنية لكتابة الطاقة

المستندات:
- كتاب وزارة الطاقة والمياه رقم 32/2012 (تاريخ 10/7/2012) ومرفقاته

قرار المجلس:
الموضوع: طلب وزارة الطاقة والمياه الموافقة على الخطة الوطنية لكفاءة الطاقة

المستندات:
- قرار مجلس الوزراء رقم 1 تاريخ 1/6/2010 (الموافقة على ورقية سياسة قطاع الكهرباء) ورقـم 3 تـاريخ 11/10/2011 (تأجيل البحث بالخطة الوطنية للكفاءة الطاقة)
- كتاب وزارة الطاقة والمياه رقم 2010/6/10/تاريخ 10/6/2011

قرار المجلس: 

The Launching of the NEEAP by MEW & LCEC
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Current Situation

- Municipalities and EDL financial problems
- PSL directly connected to Electrical Network
  - Used for private lighting
- Installed timers are not adjusted for the summer and winter seasons
- Installed photocells lack maintenance
- Awareness Campaigns
- Photocell Distribution
- Autonomous Poles
- Centralized PV Stations
- Standardization of PSL Components
Awareness

Installation and Maintenance Guide

Newspaper and Unipoles Advertisements

TV Advertisements
Newspaper and Unipoles Advertisements
TV Advertisements
Installation and Maintenance Guide
Photocell Distribution

- 945 Municipalities in Lebanon
- 305 Municipalities responded
- Response rate of 32%

- 1475 PC
- 518 Timers
- 11600 m of cables
- 105,526 Lamps

Financial Analysis

32% — 305 Municipalities
Number of Beneficiary Municipalities

Average Lamp Power 201W
Lamp Power Percentages
• 945 Municipalities in Lebanon
• 305 Municipalities responded
• Response rate of 32%
• 1475 PC
• 518 Timers
• 116000 m of cables
• 105,526 Lamps
Photocell Distribution

- 945 Municipalities in Lebanon
- 305 Municipalities responded
- Response rate of 32%

- 1475 PC
- 518 Timers
- 11600 m of cables
- 105,526 Lamps

Financial Analysis

201 W/Lamp
11,655 Lamps
116,500 W/month
2.5 U.S. kWh/savings for the municipality
2.3 U.S. kWh/savings for the municipality
72 U.S. kWh/savings for the municipality
32% --- 305 Municipalities

Number of Beneficiary Municipalities

- Mount Lebanon: 95 (31%)
- Bekaa: 61 (20%)
- South Lebanon: 83 (27%)
- North Lebanon: 36 (12%)
- Nabatiyeh: 29 (9%)

Total: 305 Municipalities
Percentage of Beneficiary Municipalities per Province

- Mount Lebanon: 33.9%
- Bekaa: 19.0%
- South Lebanon: 7.0%
- North Lebanon: 30.5%
- Nabatiyeh: 9.6%

32% --- 305 Municipalities
Average Lamp Power
201W

Lamp Power Percentages

- 47% Less than 150W
- 47% 150 W
- 2% 250 W
- 4% More than 250 W
Financial Analysis

- 201 W/Lamp
- 105,526 Lamps
- 11.855 hrs/day
- 9.4 USc/KWh
- 22 USc/KWh
- 1.7 M$ annual savings for the municipalities
- 4 M$ annual savings for EDL
Autonomous Poles

- 800 Autonomous poles
  - PV operated with backup batteries
  - LED lighting Lamps

- 70 W LED Lamps (replacing 250W)
  - 200 W PV panels
  - 2 nights autonomy
  - Distribution and installation all over Lebanon

102 $/year for the municipalities

17.5 years payback period for the municipalities

239 $/year for EDL

7.5 years payback period for EDL
- 800 Autonomous poles
- PV operated with backup batteries
- LED lighting Lamps
• 70 W LED Lamps (replacing 250W)
  • 200 W PV panels
  • 2 nights autonomy
• Distribution and installation all over Lebanon
102 $/year for the municipalities

17.5 years payback period for the municipalities

239 $/year for EDL

7.5 years payback period for EDL
Centralized PV Stations

- Choice of different touristic sites
- Conception of centralized PV stations
Standardization of PSL Components

Standards for:
- Lamps (HPS, LPS)
  - LED Lamps
  - MEPS
  - PV Panels
- Backup Batteries
Thank You!
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The adoption of the NEEAP by the GoL

Awareness
- Awareness Campaigns
- Photocell Distribution
- Autonomous Poles
- Centralized PV Stations
- Standardization of PSL Components

Current Situation
- Insufficient and expensive financial problems
- Poles already connected to Electrical Network
- Used for private lighting
- Installed height is not adjustable for the summer and winter seasons
- Required periodic maintenance

Autonomous Poles
- Advanced technologies
- Low maintenance
- Payback period
- High cost

Photocell Distribution
- Photocell technology
- Cost effective
- Easy replacement
- Reliable and durable

Centralized PV Stations
- Choice of different locations
- Conception of centralized PV stations

Standardization of PSL Components
- Photocell technology
- Cost effective
- Easy replacement
- Reliable and durable