

Activity Brief

Energy Efficiency & Renewable Energy Jdaideh Municipality Building / Lebanon

Activity Name	Energy Efficiency & Renewable Energy
Lead Partner	NERC/RSS
Supporting Partner(s) if applicable	-
Geographical Scope of Activity	Jdaideh Municipality/Municipality Building
Budget Line Item	4.1 Implement pilot projects
Budget Amount	JD 13,600
Start Date	Q1, 2019
End Date	Q3, 2019

SECTION A: ACTIVITY DESCRIPTION

1.1 Activity Summary

Either switching lights off when they are not needed or utilizing efficient lighting equipment can achieve Energy Saving in lighting systems. Lighting energy savings can also lead to improvements in lighting quality. The table below shows some energy efficiency measures that could be implemented at the Municipality's main building.

Energy Saving Opportunity	No. of Lamps	Annual Energy Saving (kWh/yr)	Annual Cost Saving (LBP)	Required Investment (LBP)	Payback Period (Years)
Replacing halogen light 100w with LED 18w	78	3748	1,124,416	1,174,290	1
Replacing CFL 85w with LED Round Panel 24w	12	429	128,685	280,020	2
Replacing CFL 24w LED Round Panel 12w	4	28	8,438	45,164	5.4
Replacing spot lights 30w with LED Spot lights 6w	16	225	67,507	84,272	1.2
Total	110	4430	1,329,046	1,583,746	1.19
			890 USD 630 JD	1060 USD 750 JD	

On the other hand, there is a good potential for using renewable energy (PV) for the municipality's main building. This potential can cover the building electricity demand using Photovoltaic Energy system that will be connected to the grid using PV-Up inverters in addition to battery storage to insure the energy security for the building at night even when the utility grid is disconnected.

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The Photovoltaic modules can be installed on the municipality building Roof-Top with capacity of 6 kWp and a battery bank related to the PV sizing.

This action is expected to save 4430 kWh (equals to JD 630) annually in lighting system with an investment of JD 750. In addition, this action will produce around 10000 kWh annually from the PV system. Which means that around the total electricity needed for the building will be covered from renewable energy.

1.2 Approach to Ensure Community Participation

Utilizing renewable energy & energy efficiency technologies at the Municipality's building offers a great opportunity to significantly reduce municipalities' energy expenses at a time when many are facing budget difficulties. In this regard, the municipality should build its staff capacities and have training on how they can follow up and maintain installed RE systems. Results of RE energy production could be visible to the Municipality's citizens in order to garner continued community support. These results can be communicated to the citizens through awareness workshops, leaflets, brochures...etc. In addition, citizens are normally eager to see that their local authority is doing its best to preserve natural resources and leads by example showing the great benefit of utilizing renewable energy technologies for its facilities. Where necessary, citizens or communities can be involved in municipality's actions related to renewable energy from the planning phase through participating in meetings, discussions and in taking the right decision. Furthermore, citizens should feel and touch the impact of utilizing Renewable Energy efficiency at their municipality, as this should be positively reflected on the provided services by the municipality towards its community.

1.3 Gender Mainstreaming Approach & Plan

A gender mainstreaming approach requires that gender equality issues be raised at each step in any project cycle. In most cases, women capacities related to energy efficiency & water management issues are invisible and limited. Enhancing women role especially for household sector is crucial as they normally using and dealing with home appliances & equipment that consume energy and water. Women need special support and assistance to build their skills on how to purchase, own and use energy & water efficient equipment. Gender engagement especially women can be enhanced through the following:

- Ensure equal participation of women in project's meetings and discussions
- Ensure active participation in relevant awareness workshops
- Where possible, to participate in planning and implementation of at least simple energy efficiency & water actions such as replacing inefficient lamps with efficient ones and water saving devices at their homes.

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1.4 Activity Objectives & Expected Results

Activities	Objective	Input	Outputs/Measureable Results	Outcomes	Purpose/Impact
Improving energy efficiency & installation PV system at the Municipality Building	Deployment of resource efficiency practices at the Municipality level and reducing energy consumption by at least 95% and reducing accompanying CO2 emission.	<ul style="list-style-type: none"> - LED lighting units of of different types and wattages. - PV system with batteries and other needed controls - Municipality technical staff participation - Qualified contractors (installers of units) - MINARET project management and supervision of activity implementation 	LED units & PV system are installed and operational	Up to 14000 KWh energy saving has been realized.	<ul style="list-style-type: none"> - Municipalities act as “lead by example” actors - Promotion of efficient and clean technology - Enhancing community awareness on best practices for resource efficiency - Contribute to climate change mitigation actions - Achieving market transformation towards efficient and clean technologies - Promoting sustainable development concept at municipality & communities levels

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1.5 Implementation Plan & Time-frame including gender mainstreaming & community participation

Task	Responsibility		Indicator	Tools & Means of Verification	2018	2019				2020
	Organization	Person				Q1	Q2	Q3	Q4	
1. Updating data, if necessary	- RSS/NERC - Municipality Staff	- Eng. Sawsan Bawarsh - Shaker Hammad	- Updated # of units (lamps & ACs)	- Updated summary paper/report						
2. Preparation of technical specification and tender documents, if needed	- RSS/NERC - Municipality Staff	- Eng. Sawsan Bawarsh - Shaker Hammad - Municipality Focal point	- Technical specifications and tender conditions are prepared.	- Tender documents files						
3. Tender announcement, evaluation and awarding	- RSS/NERC - Municipality Staff	- Eng. Sawsan Bawarsh - Shaker Hammad - Municipality Focal point	- Announcement in newspaper or other means - One contractor has been awarded	- Evaluation report - Awarding letter						
4. Implementation of the action	- Awarded contractors/installers	- Awarded contractor/installer	- 650 lamps are installed and operational - 24 AC units are installed and operational	- Progress reports						
5. Supervision and monitoring & evaluation	- RSS/NERC - Municipality technical Staff	- Eng. Sawsan Bawarsh - Shaker Hammad - Municipality Focal point	- # of corrective actions and notes	- Progress reports						

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1.6 Communication Plan

- Coordination and communication with Municipality staff and country's focal point to ensure better management of the action implementation
- Organize meetings; face-to-face, skype, phone calls...
- Share progress reports and MoMs
- Produce action's proper dissemination material

SECTION B: ACTIVITY BUDGET

The total budget of the action is broken down as follows:

Task	Budget /cost (JD)
1. Updating data, if necessary	0
2. Preparation of technical specification and tender documents, if needed	300
3. Tender announcement, evaluation and awarding	300
4. Implementation of the action	13000
5. Supervision and monitoring & evaluation	0
Total	13600