



# PROJECTS & ACHIEVEMENTS

## in Energy Efficiency and Renewable Energies

*in Lebanon*

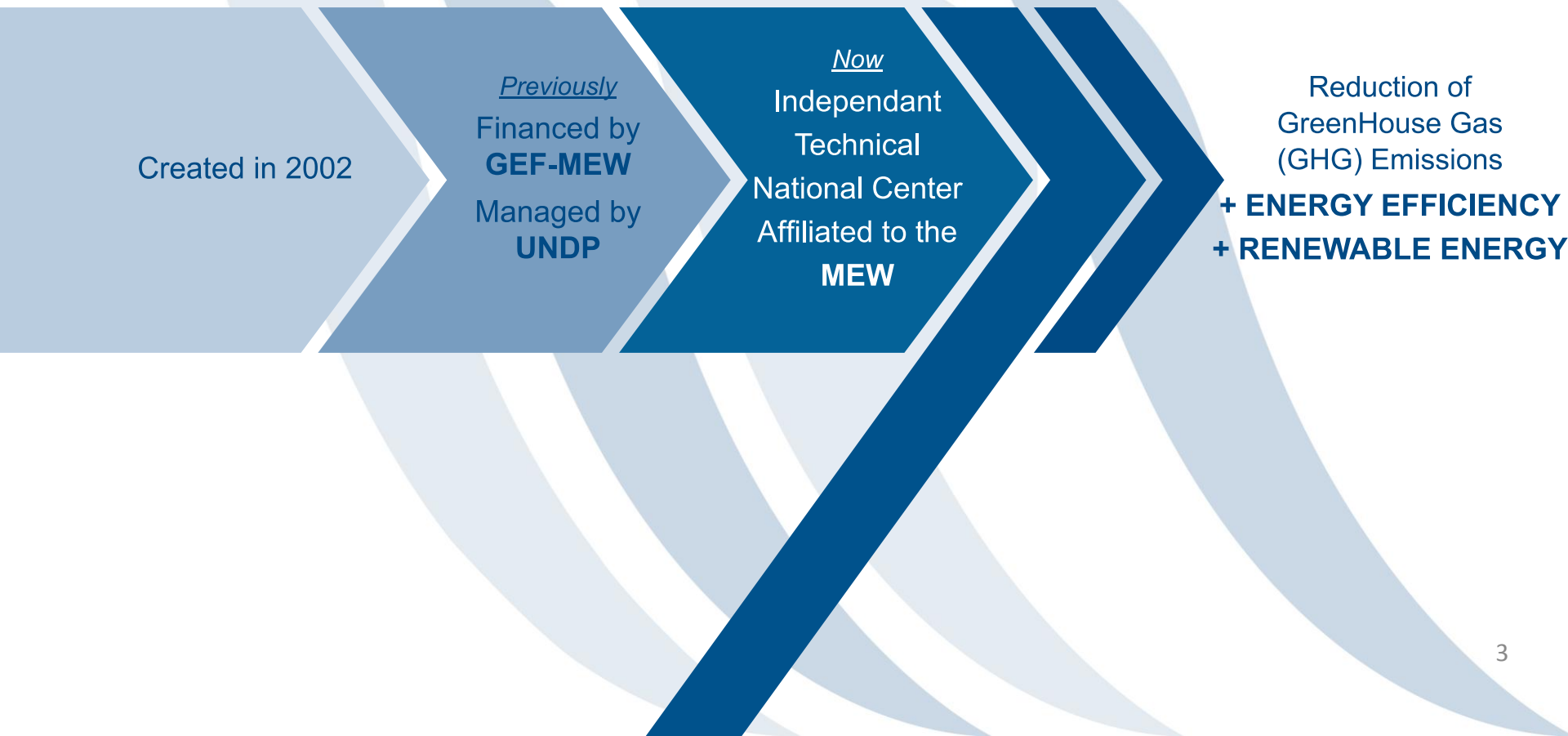
**By Rani Al Achkar,**  
Senior Programmes Engineer  
Secretary of the Board

**OMAINTEC 2017**  
October 24, 2017  
Beirut, Lebanon

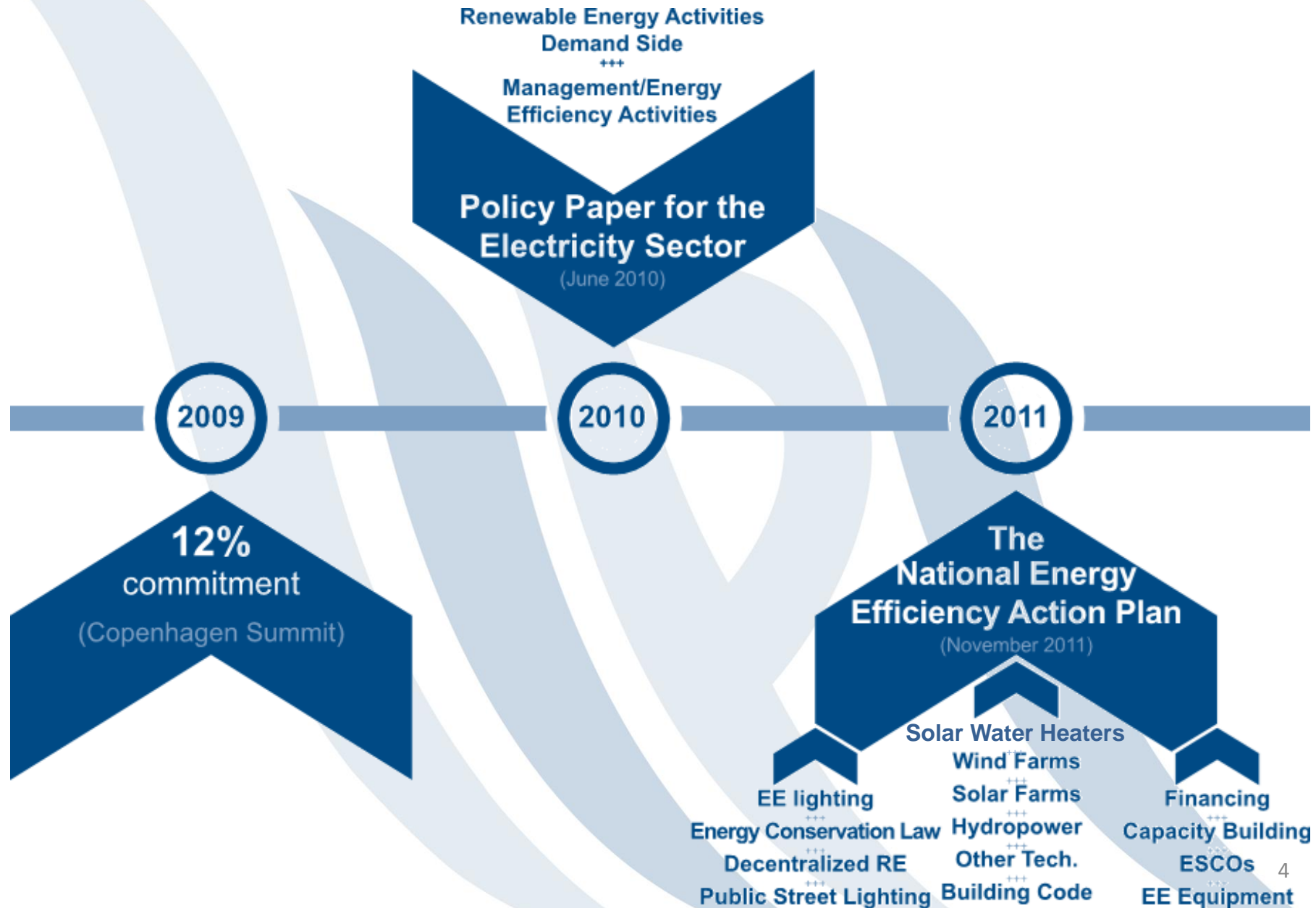
# Presentation Outline

- I. The Lebanese Center for Energy Conservation (LCEC)
- II. Political Framework
- III. National Energy Efficiency and Renewable Energy Action (NEEREA Financing Mechanism)
- IV. Lebanese Environmental Action (LEA financing Mechanism)
- V. The Italian Contribution
- VI. Projects

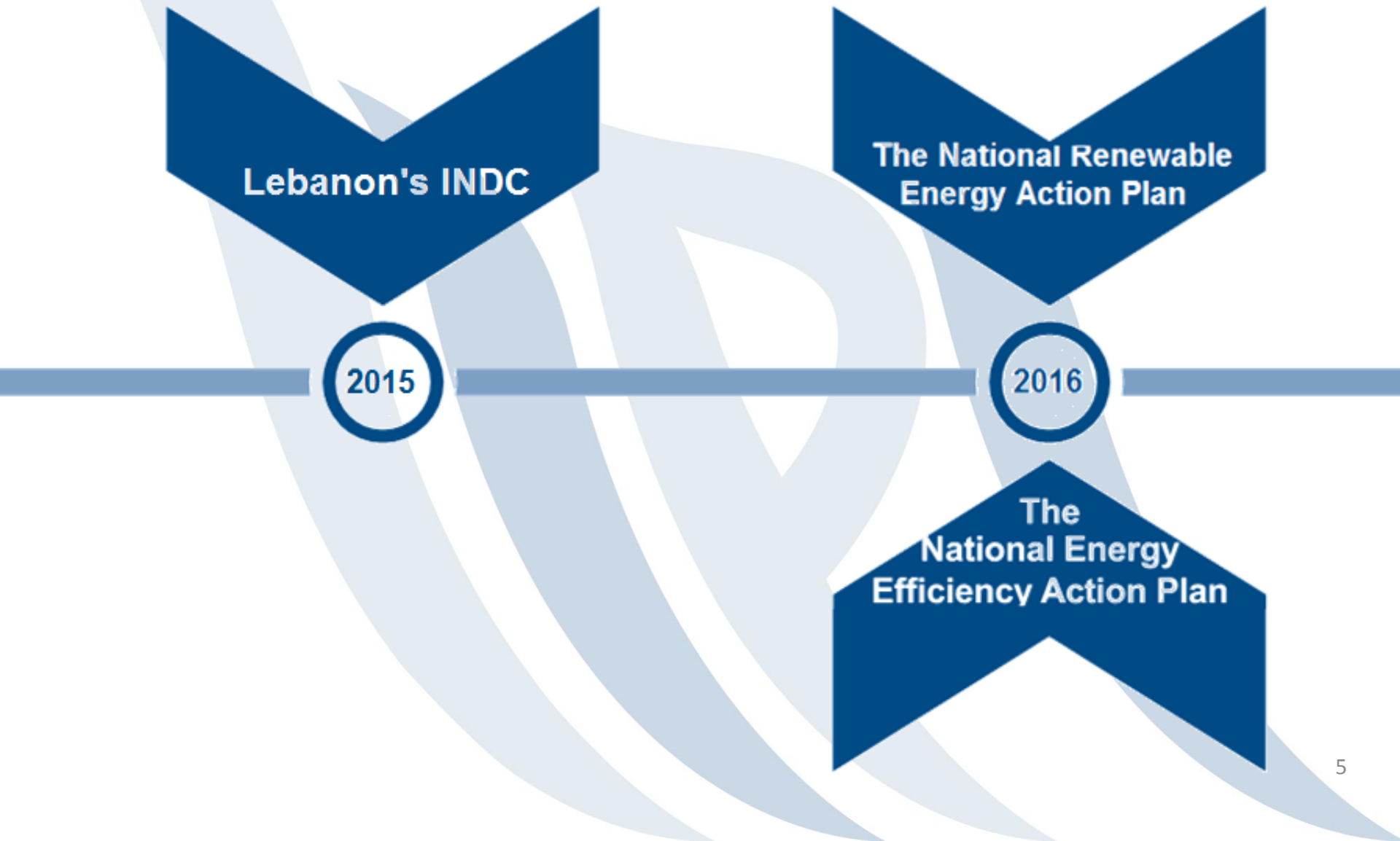
# I. The Lebanese Center for Energy Conservation (LCEC)



## II. Political Framework



## II. Political Framework

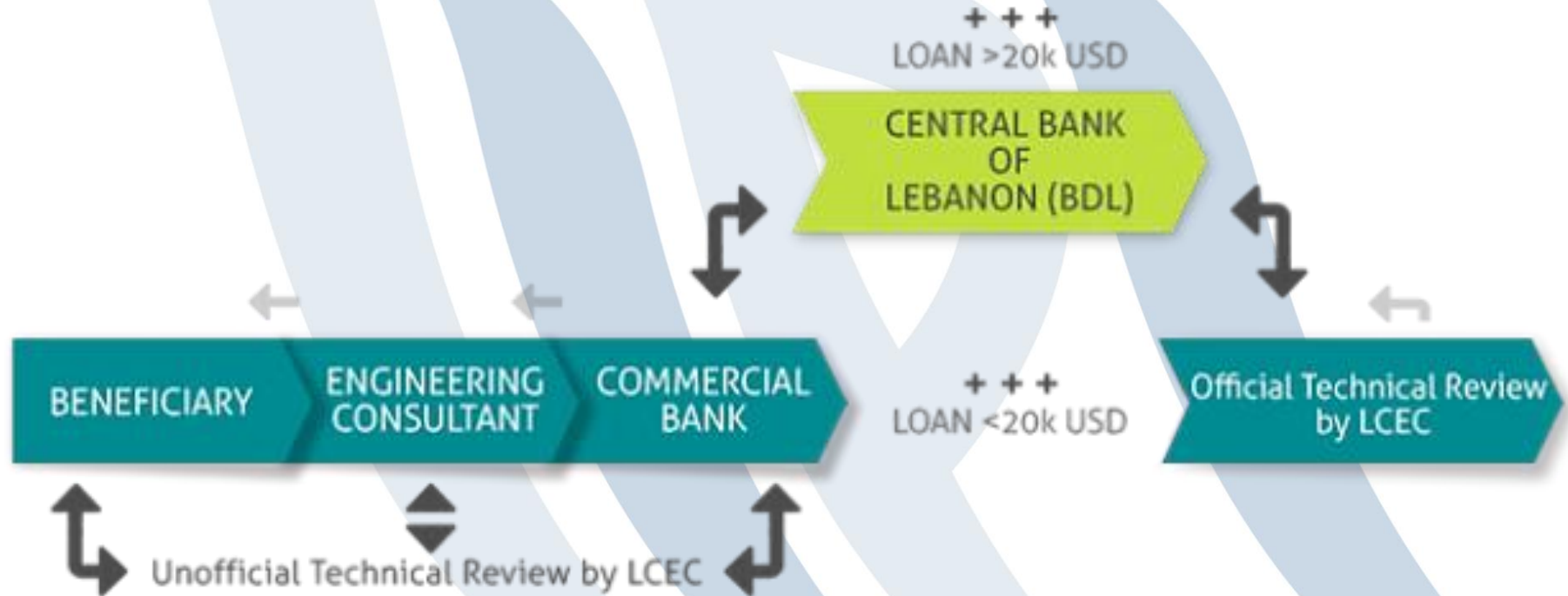


### **III. National Energy Efficiency and Renewable Energy Action (NEEREA Financing Mechanism)**

- National financing mechanism by the Central Bank of Lebanon (Banque du Liban-BDL)**
- Dedicated to the financing of green energy projects by the private sector in Lebanon**
- Launched on 25 November 2010**
- based on the BDL Circulars 236, 313, 318, 346, and 399**
- A dedicated unit at LCEC is offering BDL the related Technical Support Consultancy Services**

# III. National Energy Efficiency and Renewable Energy Action (NEEREA Financing Mechanism)

## ➤ NEEREA process diagram



### **III. National Energy Efficiency and Renewable Energy Action (NEEREA Financing Mechanism)**

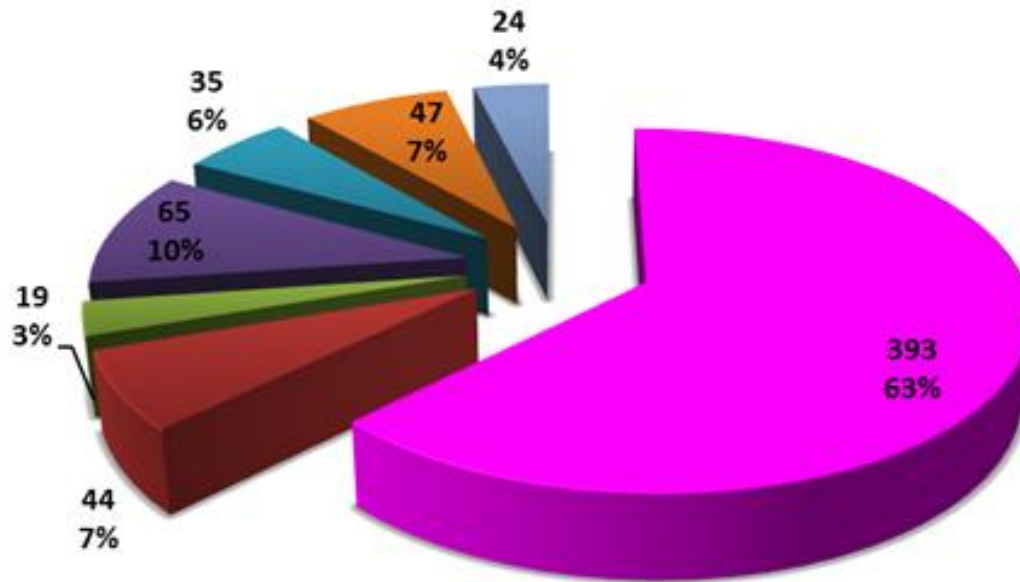
- 656 projects are approved under the NEEREA financing mechanism with a total amount of more than 391 Million USD, project value exceeding 700 Million USD**
- 42 projects are currently in the pipeline with a total amount of more than 12 Million USD**



### III. National Energy Efficiency and Renewable Energy Action (NEEREA Financing Mechanism)

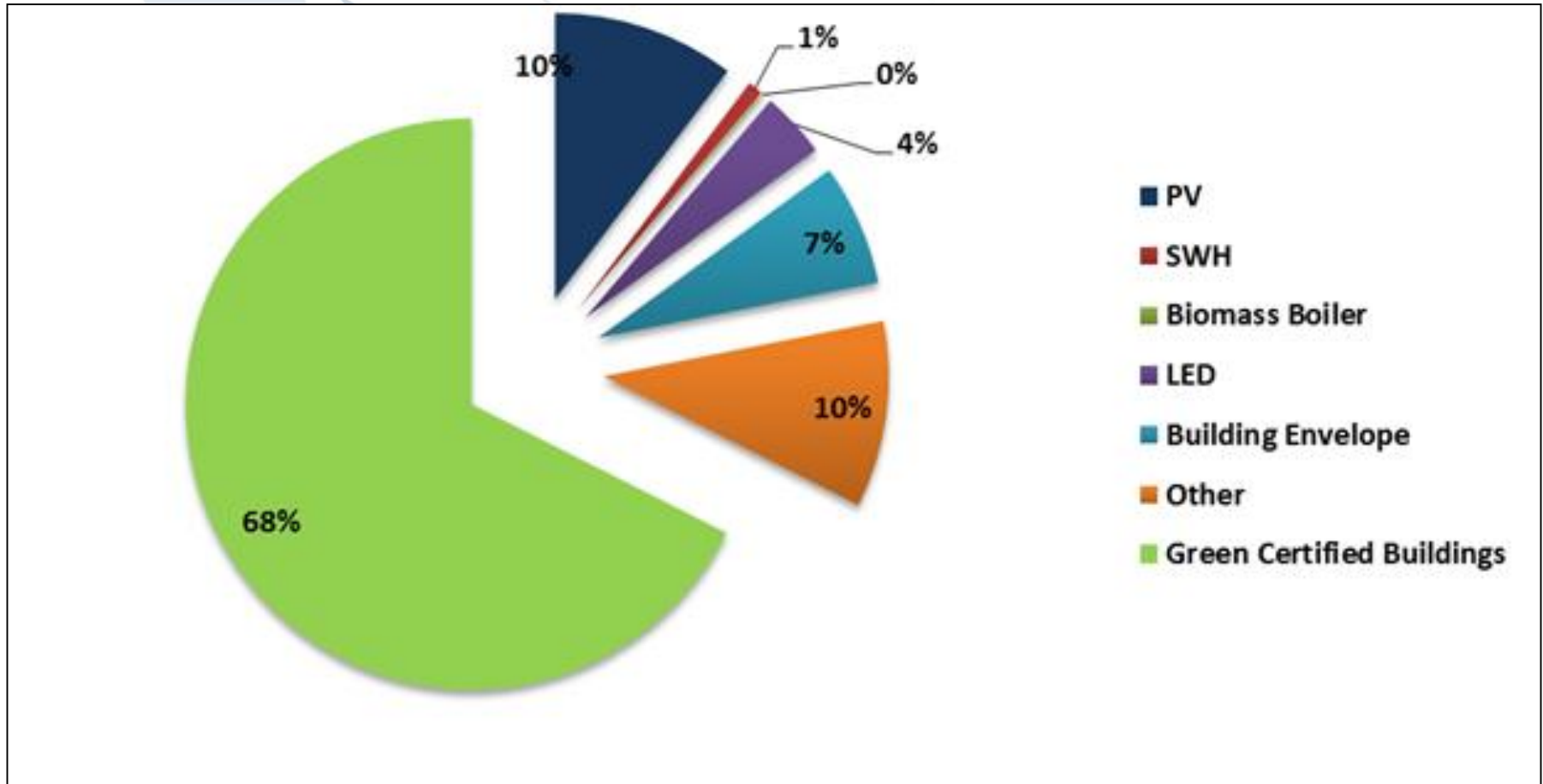
#### ➤ No. of implemented NEEREA projects by technology

PV SWH Biomass Boiler LED Building Envelope Other Green Certified Buildings



### III. National Energy Efficiency and Renewable Energy Action (NEEREA Financing Mechanism)

#### ➤ Loaned amount of NEEREA projects by technology



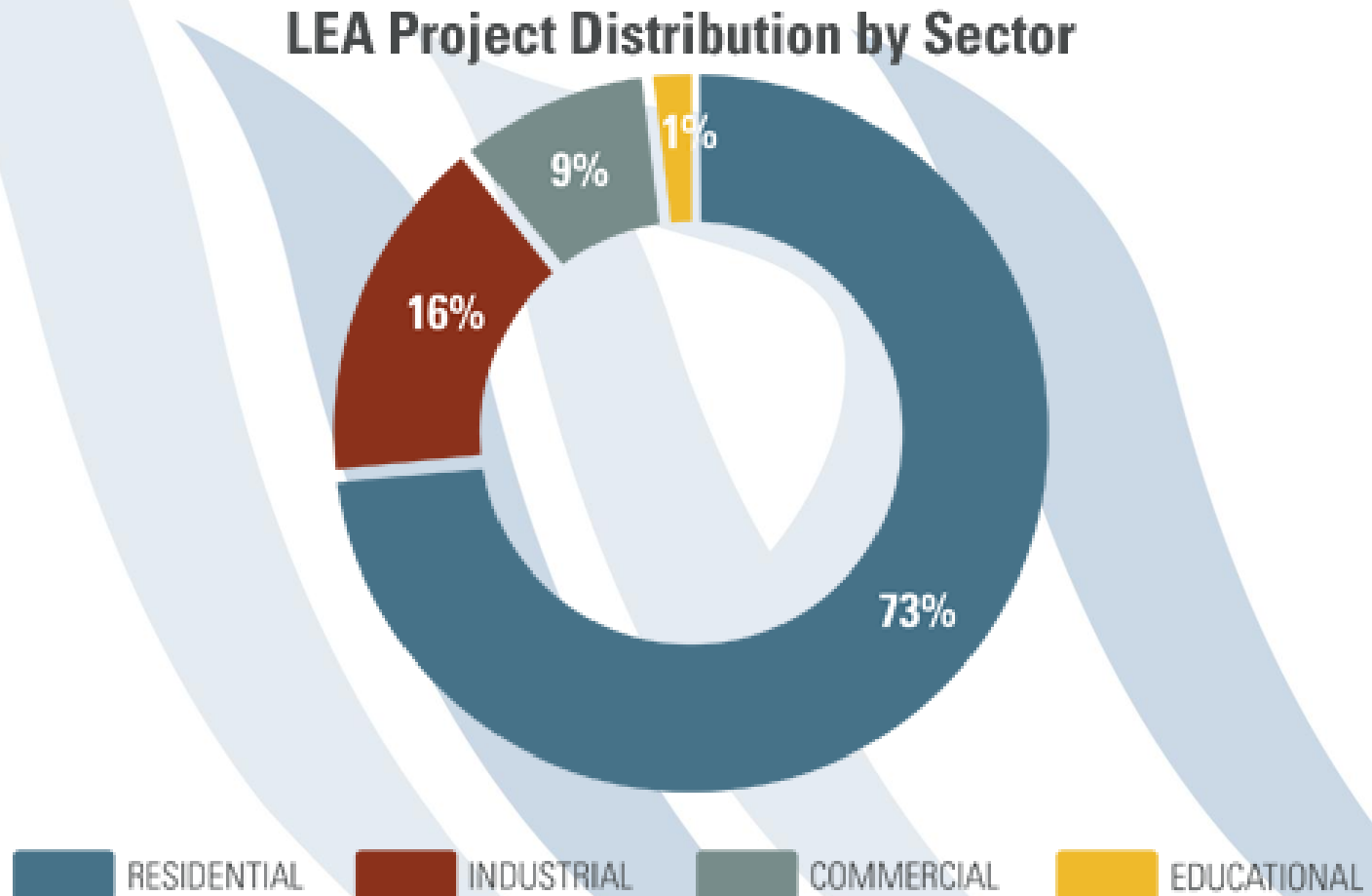
## **IV. Lebanese Environmental Action (LEA Financing Mechanism)**

- The Lebanese Environmental Action: for Water, Air, Air Quality and the Environment**
- National financing mechanism by the Central Bank of Lebanon (Banque du Liban-BDL)**
- Dedicated to the financing of environmental conservation measure by the private sector in Lebanon**
- Aimed at improving water, air quality, resource conservation, and environment**
- Launched in end of 2015**

## **IV. Lebanese Environmental Action (LEA Financing Mechanism)**

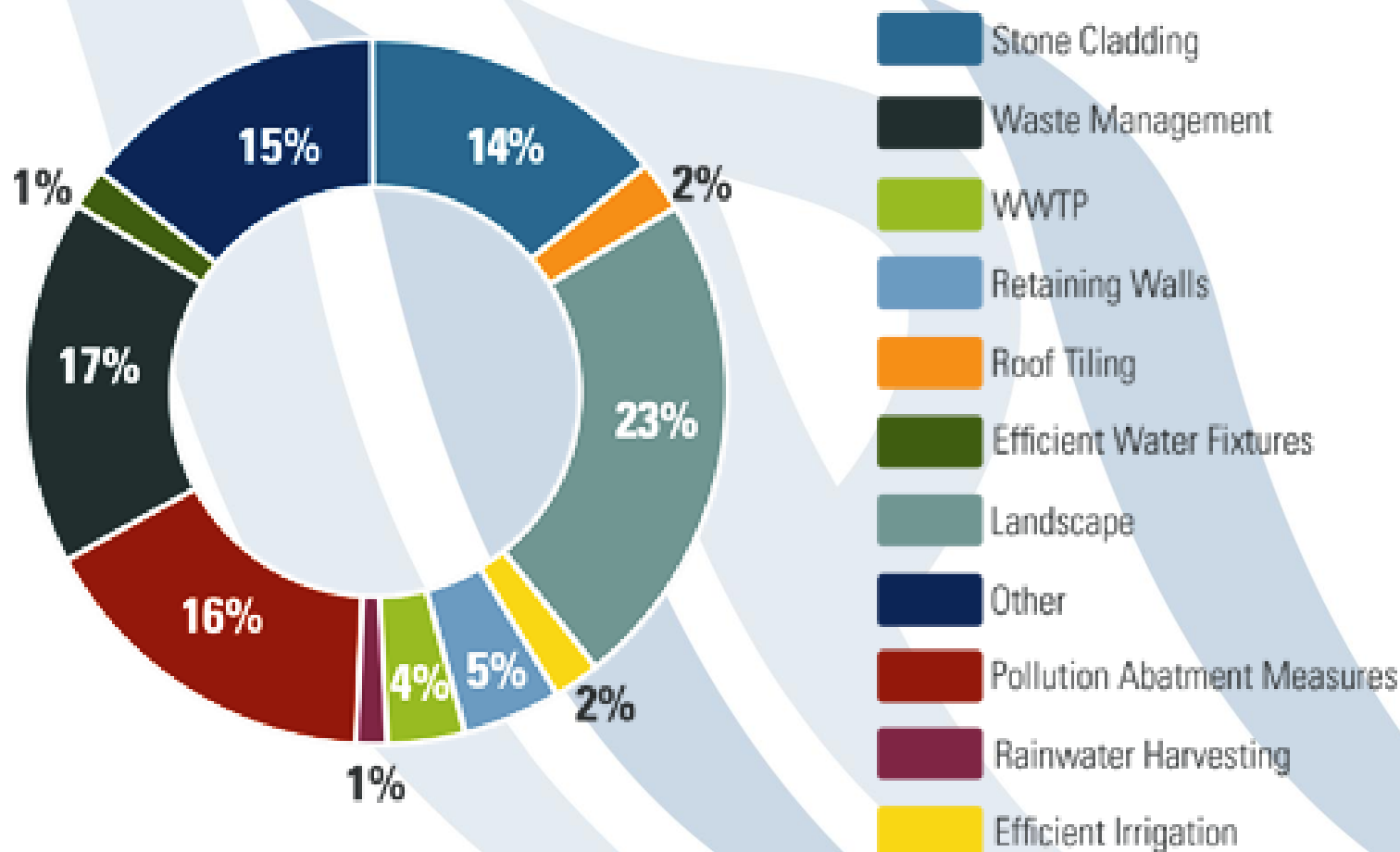
- Same procedure as NEEREA**
- A dedicated unit at LCEC is offering BDL the related Technical Support Consultancy Services**
- 95 projects are approved under the LEA financing mechanism with a total amount of more than 61.5 Million USD**
- 8 projects are currently in the pipeline with a total amount of more than 13 Million USD**

## IV. Lebanese Environmental Action (LEA Financing Mechanism)



# IV. Lebanese Environmental Action (LEA Financing Mechanism)

## LEA Granted Loan by Measure



## **V. The Italian Contribution**

- Signature of a technical agreement on sustainable development cooperation between the Italian Ministry of Environment Land and Sea (IMELS) and LCEC on 7 July 2016**
- Approval of a project on heat-pump technologies in December 2016**
- Signature of a 5 Million Euro accord between the IMELS and BDL**

## V. The Italian Contribution

- **The heat-pump project:**
- **Builds on the NEEREA financing mechanism and offers an additional grant to promote the technology**
- **Specifically for Italian products**
- **It offers additional grants (up to 30 % of total cost) for a total value of 431,609 Euro for up to 60 pilot installations**



## V. The Italian Contribution

- The heat-pump project:
- It would facilitate a wider adoption of the technology
- That would lead to cumulated energy savings of over 580 GWh and CO<sub>2</sub> emission savings of 450 million tons in the time frame 2017-2030
- Furthermore, at current electricity subsidies, the Lebanese government would save approximately 41 million US\$ in the time frame 2017-2030

## V. The Italian Contribution

- **The BDL Accord:**
- **Builds on the NEEREA financing mechanism and offers an additional grant to promote Italian technologies and services**
- **10 % grant reserved upon loan approval and disbursed after implementation of the EE or RE project**
- **Offered to project where more than 60% of the loan value is from Italian products of services**

## **VI. Projects – Wind Farms**

### **200 MW by the Private Sector**

Call for EOI launched  
on September, 2012

4 offers received by  
25 June 2013

Request for  
Proposals issued in  
March 21, 2013

## **VI. Projects – Wind Farms**

### **200 MW by the Private Sector**

- **3 offers qualified in the Akkar Region**
- **Proposed capacities: 62.1 MW, 62.1 MW and 82.5 MW**
- **20-year Power Purchase Agreement**
- **Land acquisition**
- **Environmental Impact Assessment**
- **Interconnection on high voltage network according with EDL requirements**

## VI. Projects – Wind Farms

### 200 MW by the Private Sector

- Preliminary approval on the 3 offers by the Council of Ministers in July 13, 2017
- Issuance of licenses?



# VI. Projects – Solar Photovoltaic Farms

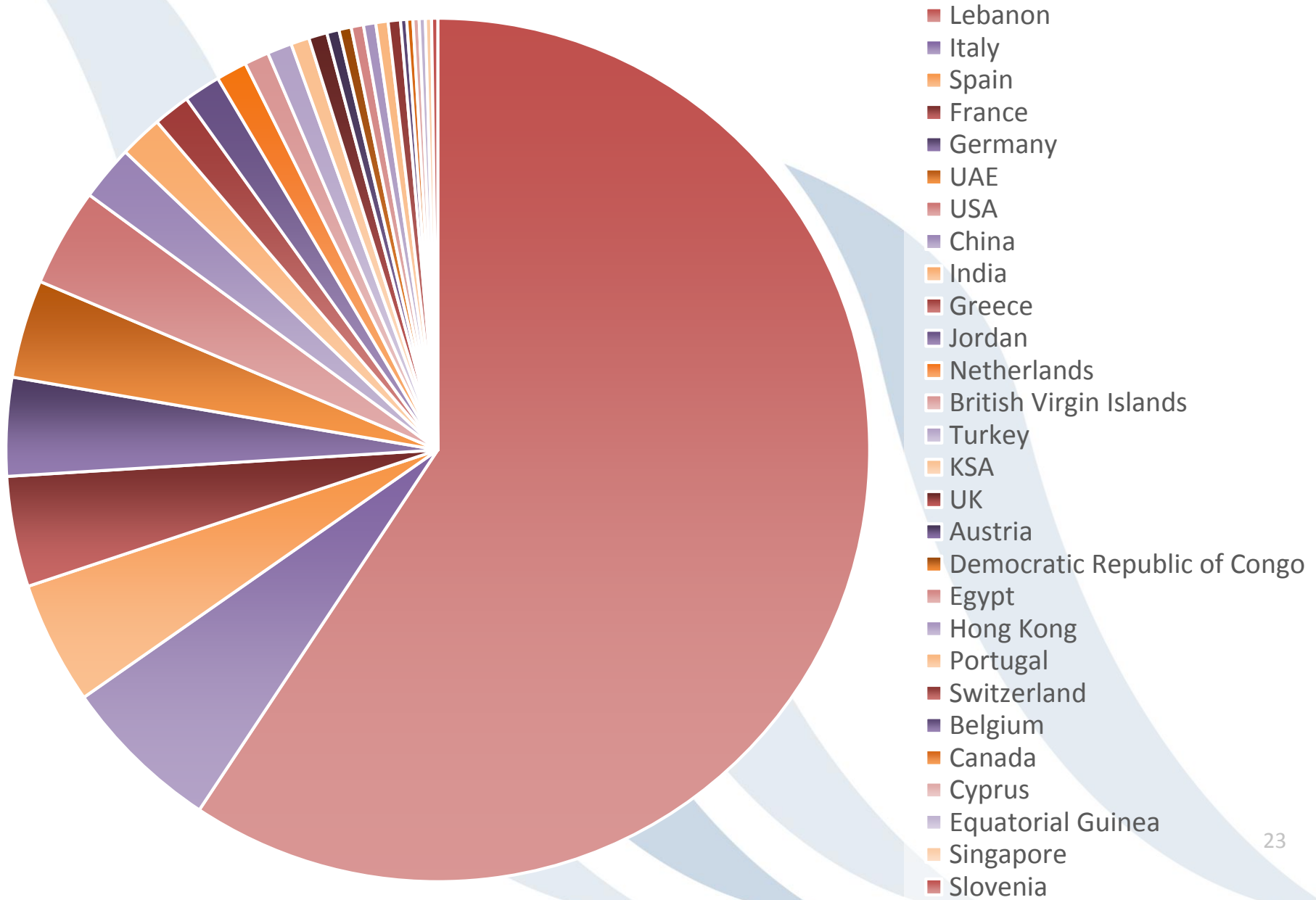
## 120 to 180 MW by the Private Sector

Call for EOI launched  
on Jan 12, 2017  
30 to 45 MW in each  
of 4 Implementation  
Regions

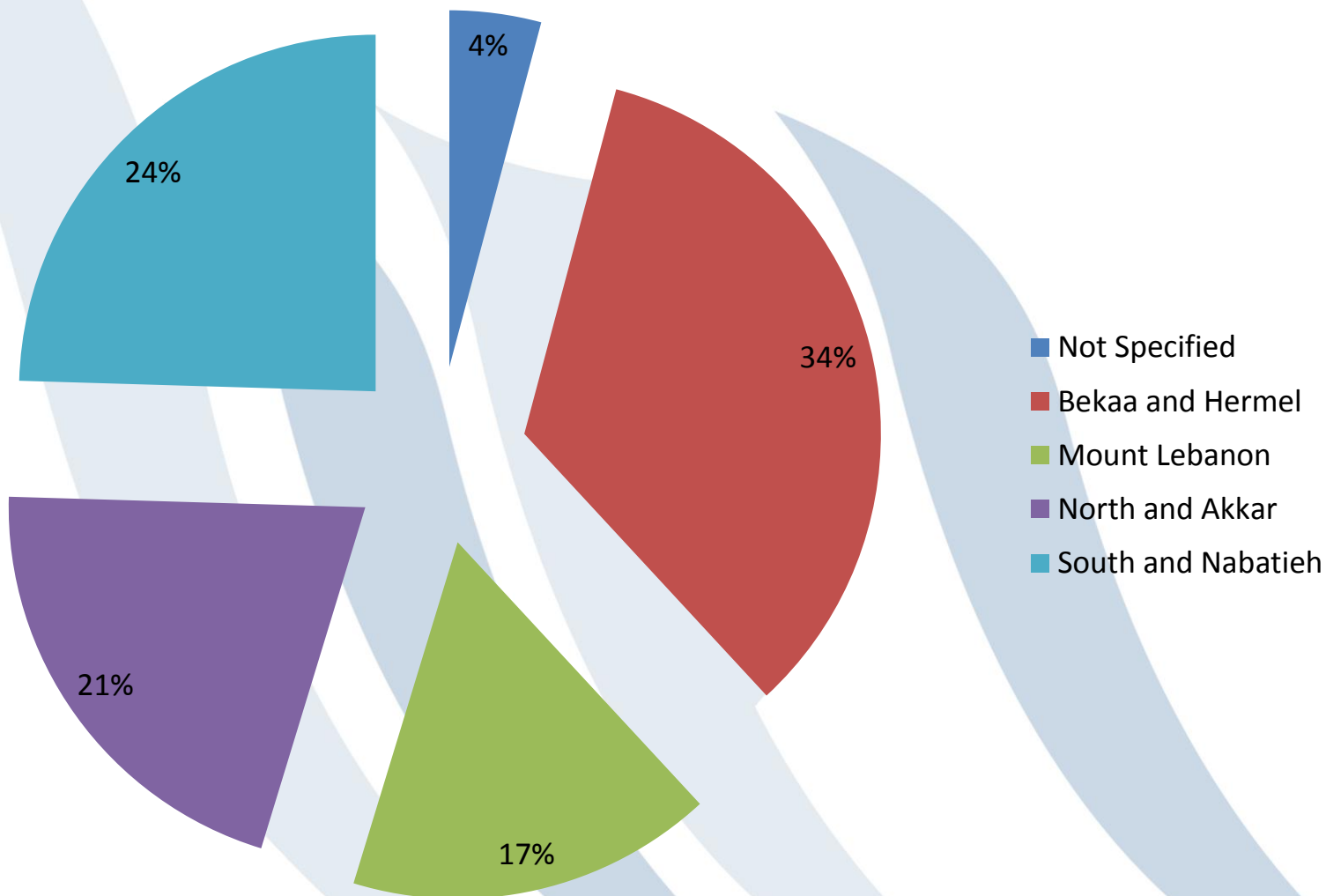
Request for  
Proposals issued  
May 16, 2017

265 projects  
received  
on Feb 28, 2017  
from 28 Countries

## VI. Projects – Solar Photovoltaic Farms

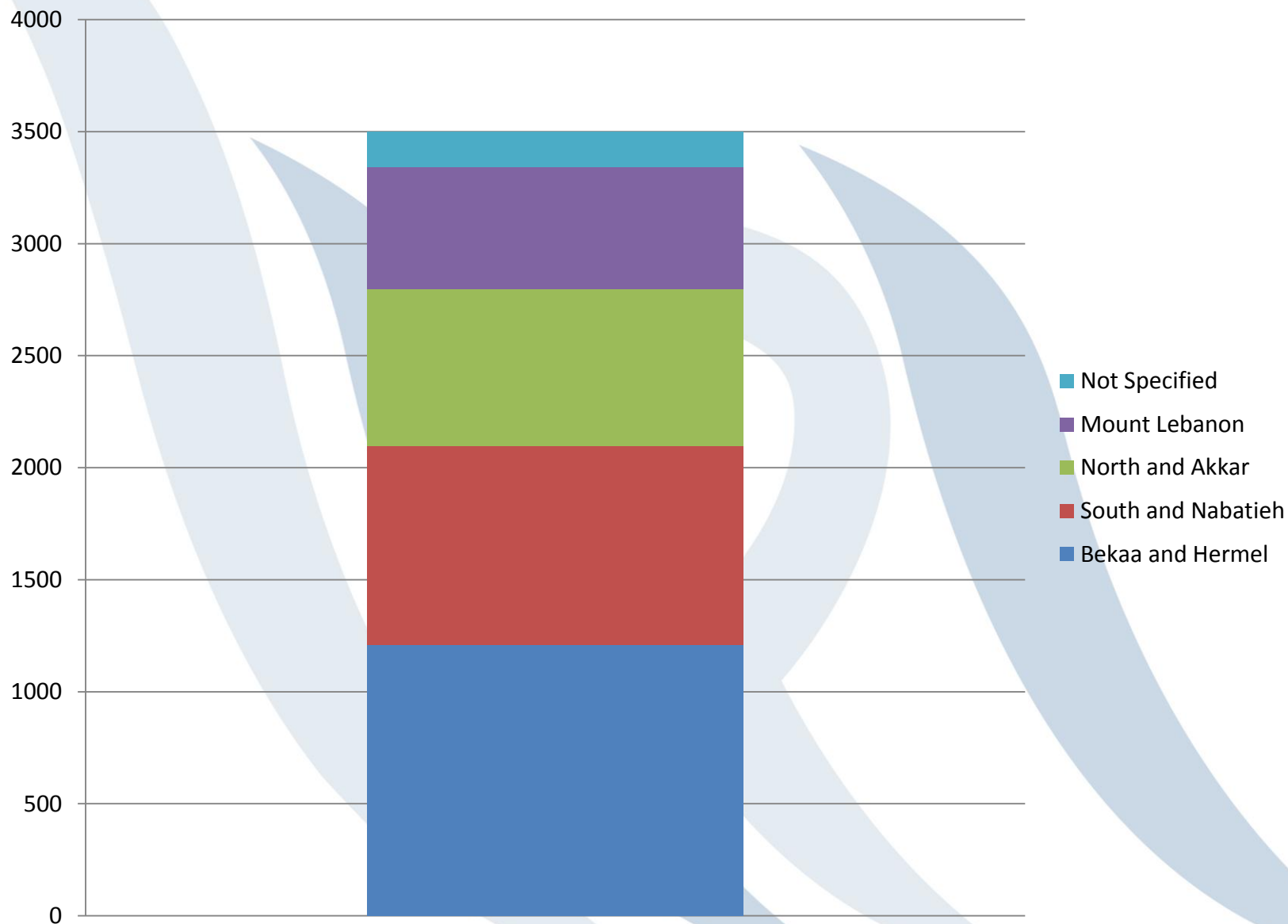


## VI. Projects – Solar Photovoltaic Farms





## VI. Projects – Solar Photovoltaic Farms



## **VI. Projects – Solar Photovoltaic Farms**

### **Request for Proposals**

- **10-15 MW per project, 30-45 MW per Implementation Region**
- **3-5 MW “Landmark Projects”**
- **25-year Power Purchase Agreement**
- **Land acquisition**
- **Environmental Impact Assessment**
- **Interconnection on high voltage network or medium voltage substations and according with EDL requirements**

## VI. Projects – Other Projects

### Beirut River Solar Snake (BRSS)

- 1 MWp solar photovoltaic project on the Beirut River
- 1<sup>st</sup> Grid-connected project of its scale in Lebanon, intended to produce and export electricity to the national grid



## VI. Projects – Other Projects

### Beirut River Solar Snake (BRSS)

- 1 MWp solar photovoltaic project at the Oil Installations of Zahrani
- Intended for the internal consumption of the facility
- Connected to the grid through a net-meter





## VI. Projects – Other Projects

### Training Platform on Solar PV

- Inaugurated in 20 September 2016 at the Industrial Research Institute
- Financed by the French Treasury
- Offers 3 training courses (off-grid, on-grid, high voltage)



## **VI. Projects – Other Projects**

### **Solar Water Heaters Programme**

- **0 % interest over 5 years**
- **Additional 200 USD subsidy for qualified systems**
- **Prequalification system by the LCEC**
- **Lebanon one of Five finalists to receive the Solar Award by the Solar Heating and Cooling Programme (SHC) of the International Energy Agency (IEA) at the ISES Solar World Congress (SWC 2017) in Abu Dhabi on 1 November 2017**



LEBANESE CENTER FOR ENERGY CONSERVATION  
المركز اللبناني لحفظ الطاقة

*efficient resources, sustainable achievements*

# Thank You!

**By Rani Al Achkar,**  
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