LADIES AND GETLEMEN.

I would like to thank the representative of the Secretary General of the United Nations, and the ESCWA, for their exerted industrious and continuing efforts in order to organize these meetings ,secure its success and reach its intended goals.

In my speech, I shall speak briefly of the energy sector in Lebanon and show the progress made in the field of sustainable energy in line with the set policies and the encountered challenges of implementation thereof.

First of all , I would like to start with some facts and figures,

I. Lebanon Electricity Production

1-Two major components:

- Gas Oil (which also includes diesel oil for automotive vehicles)
- Fuel oil

2- All this combined with electricity imports from Syria and Egypt depending on the availability of these resources and on the security status in the region.

3- During the period (2001-2010) Lebanon was importing electricity from Syria and Egypt (1116 Gwh in 2009) for renewable energy.

There are forms of energy produced in Lebanon from renewable energy, more precisely from solar water heaters (SWHs) and solar panels producing electricity for small units or factories and hydroelectric power plants.

4- In 2010, the total primary energy consumed in Lebanon was 6069.301 **Kilotons of oil equivalent(Ktoe)**, out of which 96.8% regenerated from imported petroleum products from outside Lebanon and the remaining (3.2%) were locally produced.

5- The breakdown of the total primary **electricity** energy mix in 2010, in Lebanon ,was as follows:

Description	Quantity Ktoe
Electricity imports	107.403
Gas oil	2,294.907
Fuel oil	1,291.509
Hydro	190.909
Solar Water Heaters	12.719

- 3.2% from renewable energy

II. Lebanon Government Plans

1- During 2009 Conference of the Parties (COP) meeting in Copenhagen, the Lebanese Government launched a commitment to have 12% of renewable energy in 2020.

2- In order to overcome the deficit in electricity supply and the several problems facing the Lebanese electricity sector, The Ministry of Energy and Water (MEW) of Lebanon developed in 2010, an energy policy paper for the Electricity Sector and approved by the Council of Ministers on 21 June 2010.

- It establishes an overall structure for the energy sector in Lebanon with ten initiatives, three of which are dedicated to energy efficiency and renewable energy.
- It also includes solutions for the identified problems in the electricity sector (generation, transmission, and distribution).
- The target is to reach" A total installed capacity of 5000Mega Watt in 2016,with a future demand corresponding to an annual load growth of 7%, and around 15% of peak load reserves."
- As per the policy paper, the proposed measures cost around 4,513 to 4,739 Million US Dollars.
- At the transmission and distribution levels, the policy paper sets targets to reduce technical losses, to ensure adequate connections, and to complete and improve the systems in the structure.
- Among many set objects, it also commits to launching, supporting and reinforcing all public private and individual initiatives to adopt the utilization of renewable energies to reach 12% of electrical and thermal supply by 2012.
- It also commits to control the energy growth demand to save a minimum of 5% of the total demand.
- In terms of Energy Efficiency, the policy paper covers three main areas:

- The use of the solar water heaters, compact fluorescent lamps, and energy efficient street lighting;
- The creation of a financing mechanism entitled NEEREA (National Energy Efficiency and Renewable Energy Action);
- The adoption of the Energy Conservation Law and the Institutionalization of the Lebanese Center for Energy Conservation (LCEC).

3- The First National Energy Efficiency Action Plan (NEEAP 2011- 2015):

- In accordance with the measures of the policy paper of 2010, MEW set the first National Energy Efficiency Action Plan for the Republic of Lebanon (NEEAP 2011-2015), based on the EU directive 2006/32/EC on Energy end- use Efficiency and Energy Service and prepared in conformance with the Arab Energy Efficiency Guideline.
- It was approved and adopted and by the Council of Ministers of Lebanon on 10th November, 2011 (Decision No.26).
- **Lebanon was the first Arab Country to officially adopt such plan.**

- It includes 14 initiatives that tackle energy efficiency and renewable energy.
- **the 14 initiatives of the NEEAP are the following:**

Initiative 1: Towards banning the import of incandescent lamps to Lebanon;
Initiative 2: Adoption of the Energy Conservations Law and Institutionalization of the Lebanese Center for Energy Conservation (LCEC) as The National Agency for Lebanon ;
Initiative 3: Solar water heaters for buildings and institutions;
Initiative 5: Design and implementation of a national strategy for efficient and economic public street lighting in Lebanon;
Initiative 6: Electricity generation from wind power;
Initiative 7: Electricity generation from solar energy;
Initiative 8: Hydro power for electricity generation;
Initiative 9: Geothermal, waste to energy, and other technologies;
Initiative 10: Building code in Lebanon;
Initiative 11: Financing mechanisms and incentives;
Initiative 12: Awareness and capacity building;
Initiative 13: Paving the way for energy audit and energy services companies business;
Initiative 14: Promotion of Energy Efficient Equipment;

- The NEEAP 2011- 2015 is developed during the period 2011- 2015, the Ministry of Energy and Water, through the Lebanese Center for Energy Conservation (LCEC) inverted all efforts to implement the 14 initiatives of the NEEAP.

4- The implementation of the first NEEAP was evaluated in November 2014 in collaboration with the EU funded MED- ENEC or Energy Efficiency in the Construction Sector in the Mediterranean project.

- In 2015, LCEC organized an evaluation study for the first NEEAP 2011-2015 for Lebanon.
- The first NEEAP had a unified target for both energy efficiency (EE) and renewable energy (RE) initiatives combined together.
- The initiatives had qualitative targets without any measurable to be evaluated.
- The study showed underachievement in most of the initiatives related to renewable energies: The percentage of completion ranged from 8% for initiative 14 up to 80% for initiative 11, zero % for initiative 10, and 60% for initiative 5.
- The following decision from the LCEC was to separate the NEEAP into two documents for the period 2016-2020, one dealing with energy efficiency and the second dealing with renewable energies, namely the NREAP 2016-2020.

5- The Second National Efficiency Action Plan for the Republic of Lebanon-NEEAP 2016-2020, is developed according to the format used by the European Union,and its structure is in accordance with the Arab Guidelines for NEEAP as proposed by the League of Arab States

- It includes a number of energy efficiency initiatives targeting the different sectors of the Lebanese economy.
- These initiatives are distributed along two major axes dedicated to primary energy savings and end-use measures.
- Primary energy saving measures are in the generation, transmission and distribution sectors of the Lebanese power network. The section on end- use measures deals with energy savings measures in the following major sectors: building, industry, small and middle size enterprises, agriculture, mobility and transport and public services and facilities, and have a cross – sectorial impact on the economy.
- It includes different types of measures regarding policies, regulations, actions plans and implementation.
- It takes the year 2010 as the base year.
- The Key indicators for baseline year 2010 and 2020 are shown, according to which the projected growth rate for demand for electric power is equal to 7% and 5.81% in the years 2010 and 2020 respectively; Monitoring method/saving measurement (Input, Output and outcome indicators); monitoring/verification; next steps after the year 2020, and the funding.

- The National target for 2020 will be actually the sum of all the potential savings in the different sectors of the economy.
- The sum of all the overall estimated savings of proposed measures over the five – year – period 2016-2020 of the second NEEAP's implementation are around 686.1 Gwh for primary energy (including electricity generation, transmission and distribution) and around 828.1 GWH for end –use energy (including building, industrial and public sectors): that would imply total savings of 1514.2Gwh over the five years leading to average yearly savings of around 302.9 Gwh.

    - The National Renewable Energy Action Plan (NREAP) for the Republic of Lebanon for the year 2016-2020 set a clear path towards the 2020 target of 767 Ktoe of renewable energy (equivalent to 12%).
    - It proposed a clear distribution of 2020 among the different RE resources.
    - Having a clear vision combined with the detailed targets presents a big motivation for investors in renewable energies to identify their opportunities, and hence help develop this sector.
    - The total cost of the implementation of all the NREAP varies between 1320 and 3166 Million US Dollars.
    - The renewable energy projects will be providing about 1820 hours of extra electricity in 2020.
    - On the environmental level, the full application of the NREAP plan will induce a reduction of more than 2206 KTCO2/Year of equivalent greenhouse gas (GHG) emissions helping lower Lebanon's contribution from 19603 Kt CO2 eq/year by around 11.25% to reach 17397 Kt CO2 eq/year.
    - It is noteworthy to mention that ESCWA in cooperation with the United Nation Economic Commission for Europe (UNECE) is implementing a UN Development Account Project on Promoting Renewable Energy investment for climate change mitigation and sustainable Development ,

    - This report represents one of the four case studies on the experience of policy reforms in selected ESCWA Member Countries which includes Lebanon.

III. Case Study for Lebanon –Final Draft December 2016.

The main purpose of the document is to present a comprehensive study for the impact of the **implementation** of the National Renewable Energy Action Plan (NREAP), **on the Lebanese Energy market** in general**.**

The final draft report had shown the **Barriers /Challenges** facing the implementation of the renewable energy projects in Lebanon as follows:
-Economics and financial challenges.

-Market challenges.
-Political, institutional /governance, regulatory and administrative barriers
-Cultural, behavioral and educational barriers.
-Technical / technological challenges.

Based on these challenges**, a series of the recommendations** had been deduced:

- **Working on lowering**, in order to completely **remove later** on All taxes including **custom fee** on renewable energy products.

- Establishing a **clean and transparent model** for large renewable energy projects.
- **Solving** the problem of **bankability of Electricite du Liban** through the use of another agency related to the MEW in Lebanon to function or a buffer for RE projects.
- **Political, security and economical stabilities are very important** factors for the development of **any new sector** and especially of the Renewable Energy (RE Market).
- **Controling the quality of components** and systems injected into the market by creating a **licenses** scheme **for RE installers and suppliers**.
- The **development of local manufacturing RE systems**, parts of systems or components must be considered also as a complementary step for the development of the RE market in Lebanon.
- **A serious implementation** of the energy policies is needed in order **to build trust** in the field of energy in Lebanon and so we can send a clear message to the field of RE.

The attached table (1) summarizes the made progress in terms of sustainable energy; policies and challenges of policy implementation.

In conclusion, I thank you for your kind attention and repeat my wishes for the success and achievement of the goals of the present meeting.

MEW-Lebanon
General Director of Oil
Engineer Aurore Feghaly

Table 1

Made Progress in terms of SE, Policies, and Challenges

Made Progress in terms of SE	Initiated Policy	Challenges of Policy implementation

	The policy paper for the restructuring of the electrical network in Lebanon launched by the Ministry of Energy and Water (MEW) in Lebanon, in 2009.	The application of this plan has been delayed several times for political reasons.
Electricity plan regarding generation of additional power from fossil fuel, 2017	Policy initiated by MEW and approved by the cabinet of Ministers in January, 2017	
Recent commissioning of two new power plants one at Zouk and the other at Jieh- Lebanon	Policy initiated previously.	Challenges subdued.
Setting a target of 12% for the electric and thermic supply to be from Renewable Energy (RE) resources by the year 2020.	Ministry of Energy and Water (MEW) policy paper for the Electricity Sector in Lebanon-2010	
Implementation of the Beirut River Solar Snake or BRSS on Beirut river for the generation of 1 MW capacity from solar radiation	Initiated by MEW through LCEC.	No challenges.
The National Renewable Energy Action plan (NREAP) for (2016-2020), envisages the following: - 931.8 MW of RE capacity projects to be installed in Lebanon by 2020(Excluding solar water heaters SWH) - By 2020, the GHG emissions will be reduced by a about 11.25% approximately and will reach 17397 Kt CO2 equivalent/year. - Setting of a clear path towards the 2020 target of 767 kto equivalent of RE (equivalent to (12%). - Securing of additional 1890 hours approximately of electricity. - Slize of investment: US Dollars (1603-3166) million (Excluding the bio-mass market). - Stacked savings of US Dollars 319 million. - Creation of job opportunities.	The NREAF for (2016-2020) prepared by the Lebanese Center foe Energy Conservation (LCEC)	- Financial challenges: No financing mechanisms were adopted for large RE projects. - Political stability and economic bankability of the projects. - Market challenges. - Political institutional/governance, regulatory and administrative barriers. - Cultural, behavioral, and educational challenges. - Technical/Technological challenges (Reference: UN Development Account Project on Promoting Renewable Energy Investments for Climate Change mitigation and sustainable development..-case study for Lebanon Final Draft Report) - December 2016).
Made Progress in terms of SE	**Initiated Policy**	**Challenges of Policy**

		implementation
Loans supplied by the private banks in Lebanon to more than 391 RE & EE projects in Lebanon worth of more than US Dollars 308 million until April, 2016 (EE: Energy Efficiency). Contribution of the European Union by offering grants to small and middle enterprises.	The NEEREA financing mechanism with Central Bank of Lebanon Collaboration	
The NEEAP National Energy and Efficiency Action Plan for (2011-2015)	Evaluation of the NEEAP for (2011-2015) (Mortada, EL Khoury and EL Assaad, 2016)	- Under achievements in most of the 14 initiatives of the plan. - Lack of study of the needs in terms of legal and policy reforms for the development of renewable energy. - Lack of a proposed evaluation methodology for the plan in order to be revised & corrected, if needed. - Lack of assessment of the potential of all renewable energy resources available in Lebanon and setting of targets for each of the technologies. - Lack of setting of a projection for energy consumption in Lebanon based on which the 2020 target can be defined - Etc…
Offering first opportunity to connect RE targets to the national grid (More than 50 targets)	Net-Metering , which was introduced in 2011 after approval of EDL board Efforts began in 2010	This plan encountered limitations, mainly manual calculation, of the net amounts of electricity & lack of meters at EDL (Electricité du Liban)