

7TH INTERNATIONAL FORUM ON ENERGY FOR SUSTAINABLE DEVELOPMENT
Baku, Azerbaijan - (18-21 OCTOBER 2016)

INTERNATIONAL CONFERENCE ON RENEWABLE ENERGY / REGIONAL SEMINAR ON:
«Enabling Policies to Promote Financing Renewable Energy Investments»

19-20 October 2016

Economic And Social Commission For Western Asia



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Renewable Energy Policies Case Study For Lebanon

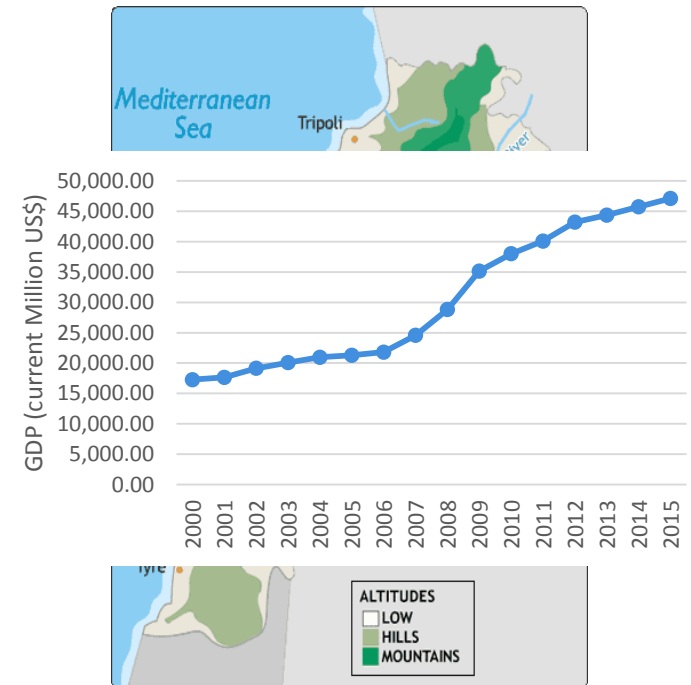
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Table of Content

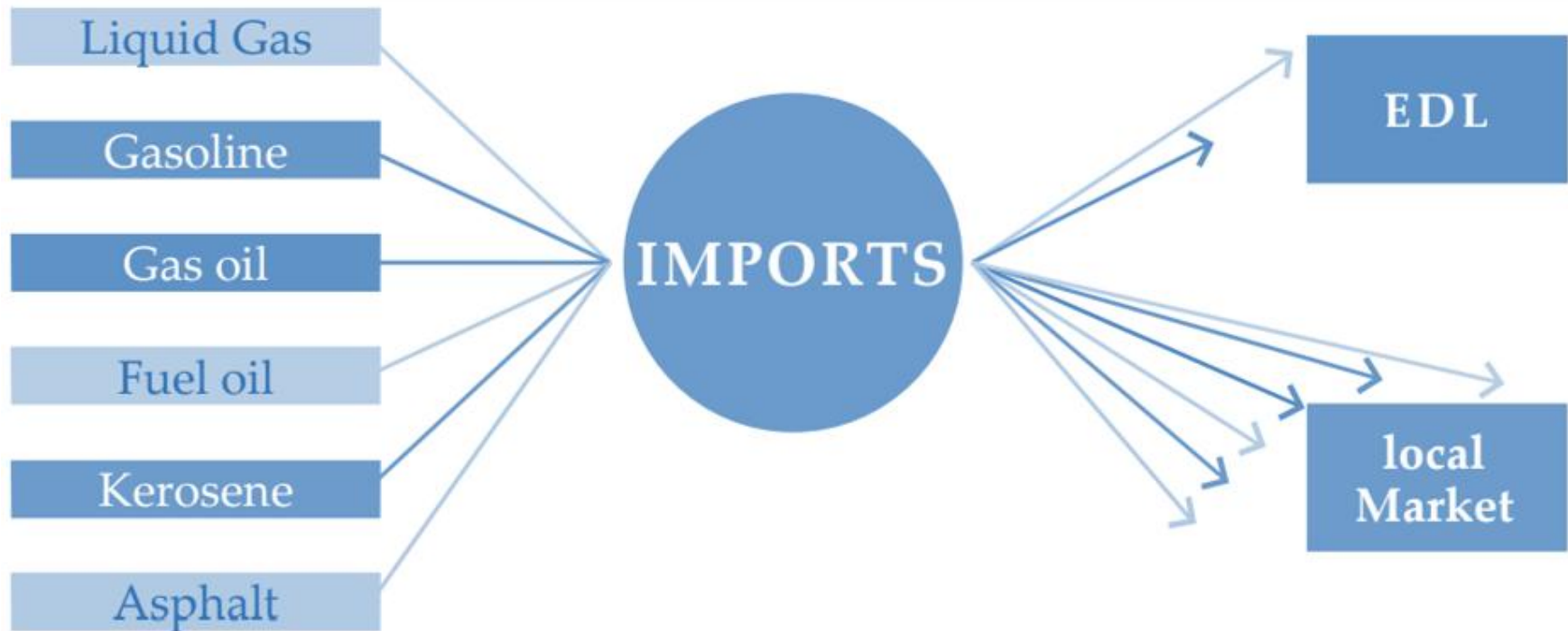
- *Country Brief*
- *Energy sector characteristics*
- *Renewable Energy Potential*
- *Current and prior Policy status*
- *Economic, Environmental and Policy Analysis*
- *Policy Design Considerations*
- *Barriers, Challenges and Lessons Learned*
- *Conclusions and Recommendations*

Country Brief

- 10452 km²
- 5,882,562 capita
- Palestinian refugees (more than 0.5 Million)
- 1.1 Million Syrian refugee
- GDP at current prices of 47.103 Billion USD
- An estimated increase of 1.5% in 2015
- Lebanon is at the eye of the hurricane hitting the region with effects showing in different fields from economy to energy

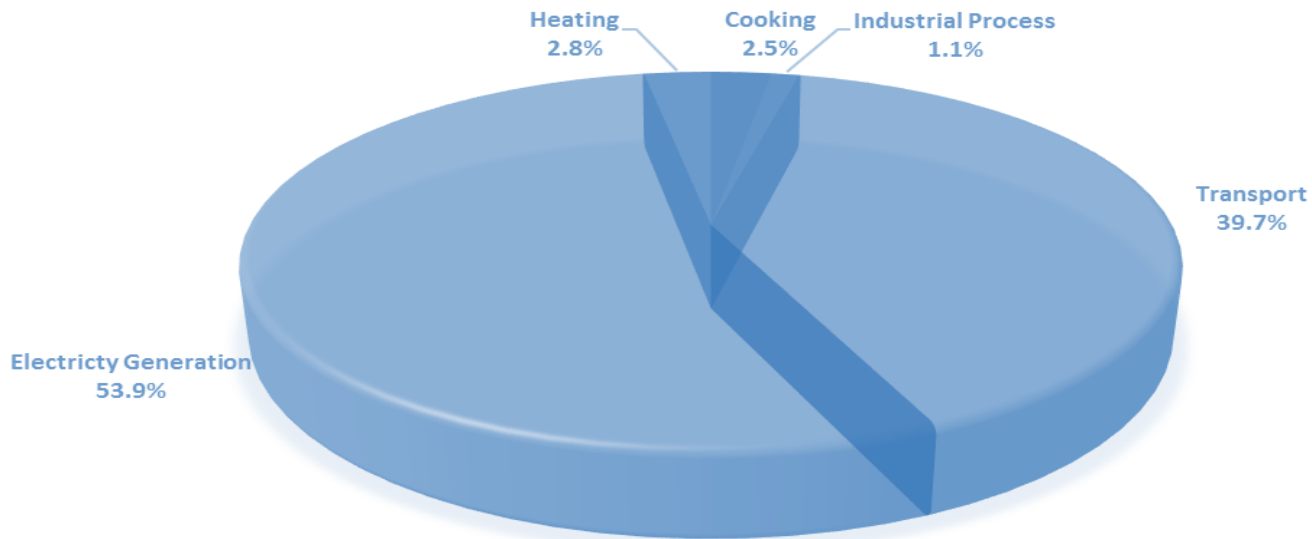


Energy Sector Characteristics



During the base year, the total fuel imports amount to 5,768,269.94 toe consumed in the different sectors in Lebanon.

Energy Sector Characteristics



*Total consumption in 2010 amounts to **6,069** ktoe, out of which **96.8%** were imported from outside Lebanon and the remaining (**3.2%**) was locally produced.*

Energy Sector Characteristics



EDL Generation 12,089 GWh



Private Generators 2,950 GWh

Total Generation 15,039 GWh

**Electricity Demand
15,934 GWh**

Deficit ~ 900 GWh

Renewable Energy Potential



Geographical Constraints



Urban Constraints



Agricultural Constraints



Financial Constraints

Renewable Energy Potential

	MW	GWh
Wind	5,408	12,139
PV Farms	87,600	146,130
CSP	8,065	18,275
Distributed PV	170	280,500
Hydro	368	1,363

	GWh
SWH	1,105
Geothermal	109
Biomass	606.5

Total feasible RE potential equivalent to a generation of more than 460 TWh in both direct use or for electricity generation

Prior Policy Status

- *12% 2020 target announced in 2009*
- *No definition nor baseline for this target*
- *MEW main stakeholder*
- *LCEC national energy agency*
- *EDL solely controlling generation, transmission and distribution*

Prior Policy Status

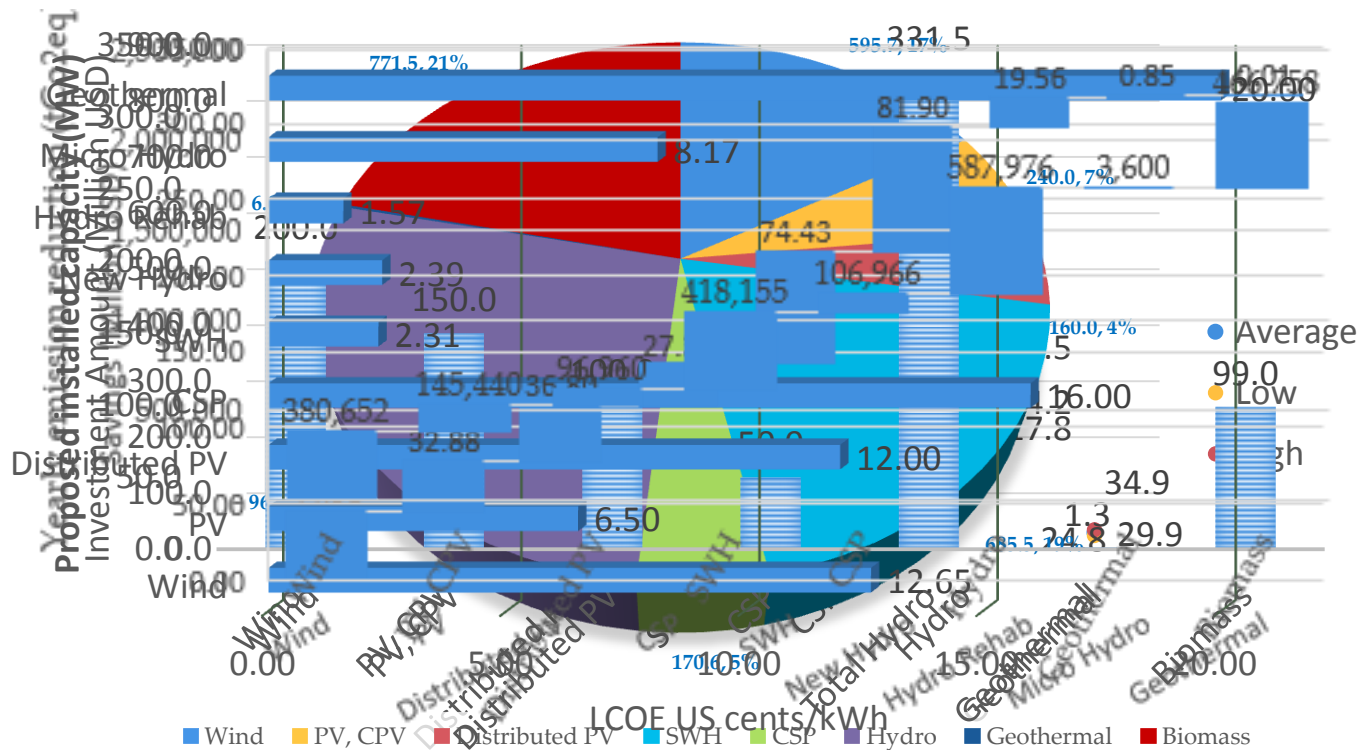
- *Law 462 was presented in the objective of reforming this structure of this sector.*
- *It introduced the ERA to grant licenses for IPP to generate electricity and feed it to the grid.*
- *It has been in force since 2002, it was never actually implemented.*
- *Accordingly, there is no regulatory body to issue licenses for new generation.*

Prior Policy Status

- *No privileges for renewable energies on the legal level under law 462 and its amendments.*
- *Law 288: delegation of the ERA authority to LG*
- *Meanwhile, most of the renewable energy projects are being limited in size essentially because of this legal barrier*
- *Some light drifting from the lately organized wind farm tender by LCEC that can constitute a precedent for such tenders.*

Economic, Environmental and Policy Analysis

Reduction of GHG emissions by 2020 of 100,000 tonnes of equivalent GHG



Policy Design Considerations

- *Electricity reform paper in 2010*
- *NEEAP 2011-2015 in 2011*
- *AREF in 2012*
- *Template of NREAP to be adopted by the Arab Countries in 2014*
- *Imports of electricity from Egypt and Syria became very unstable following the situation in those countries*
- *2015 INDC 15% of heat and electricity from RE in 2030*

Barriers and Challenges

- *No clear contracting procedure (PPA)*
- *Clear taxation policy*
- *Licensing schemes for installers – open market*
- *Monopoly of EDL (law 462)*
- *EDL, already suffering from an aging staff and administration and from a severe financial deficit*
- *No licenses under law 288*
- *Proposal for licensing should come from 2 ministries*
- *Absence of a clear grid code for RE*

Conclusions

- *RE projects are very important for the Lebanese situation ameliorating the energy security*
- *Most of the studied RE technologies have a lower LCOE than the generation cost*
- *Implementing the whole plan will:*
 - *Need between 1.3 and 3.1 Billion USD*
 - *Save 319 Million USD per year*
 - *Reduce GHG emissions by 2,206 ktCO₂eq/year*
 - *Supply approximately 1,890 extra hours of electricity*

Recommendations

- *Adoption of a clear licensing procedure for large scale RE projects*
- *Opening the way for RE IPPs*
- *Isolate RE licensing from political problems*
- *Stable long term strategy for integrating RE into the grid*
- *Adoption of a grid code for the integration of RE into the grid*
- *Training of specialized engineer especially O&M of large scale projects*
- *Vocational training in the specialized fields of each of the RE technologies*

THANK YOU!
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