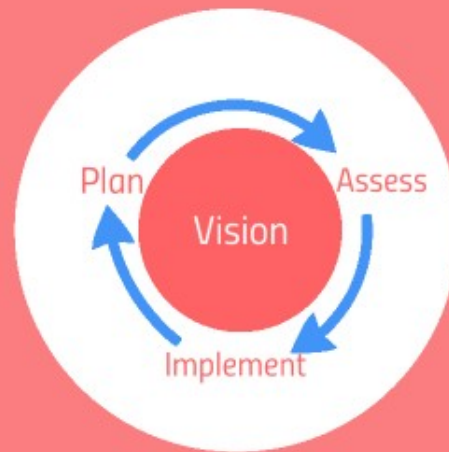




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Beginnings ...



2010

2012

2010

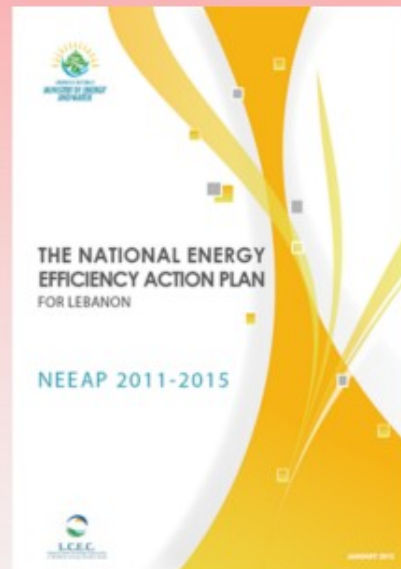


Policy Paper
for the Electricity Sector

Gebran Bassil
Ministry of Energy and Water

June 2010

2012



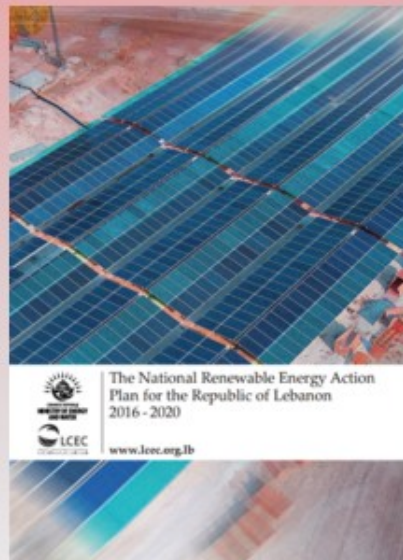
2016 EE

2016 RE

2016 EE



2016 RE

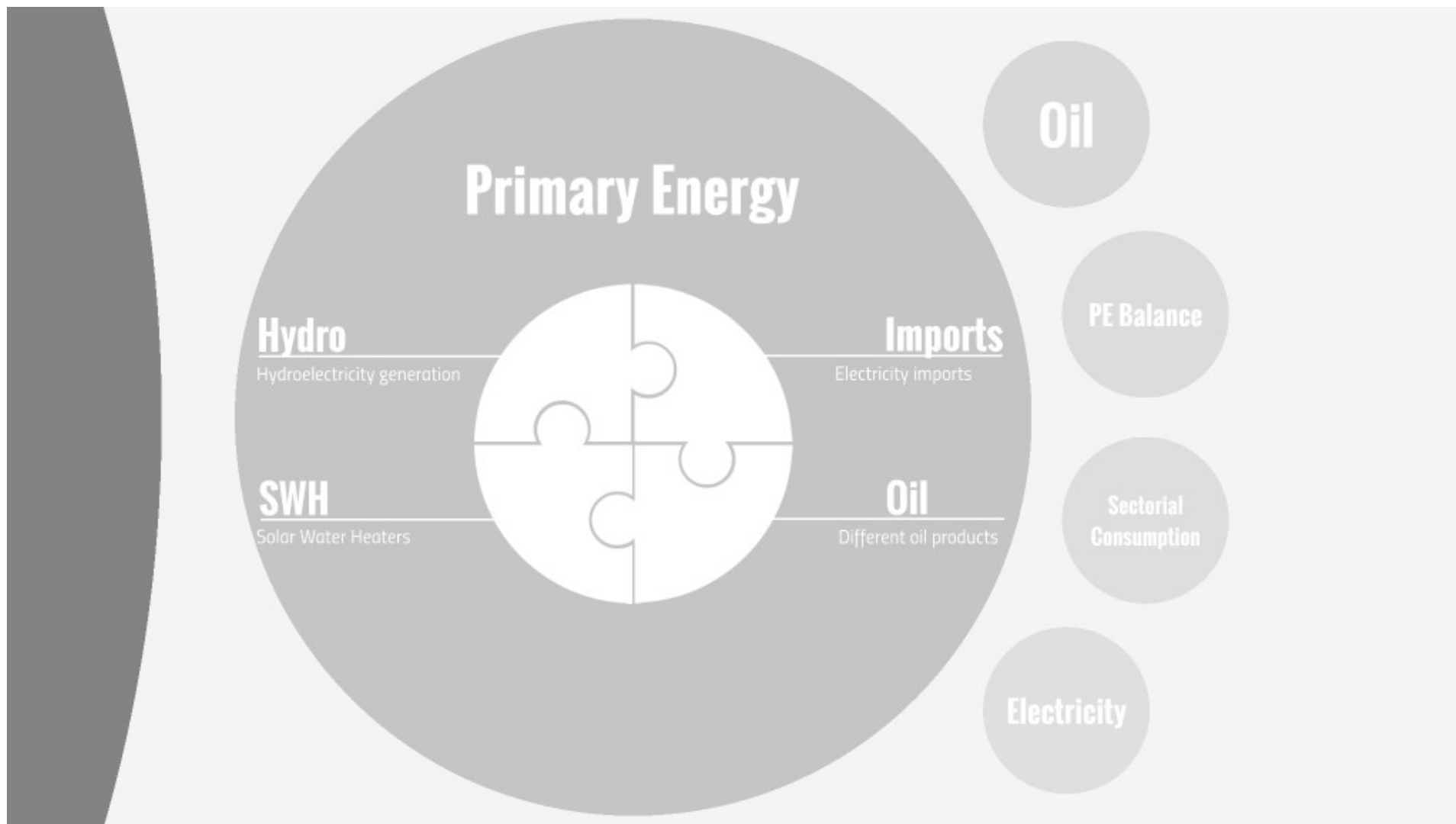




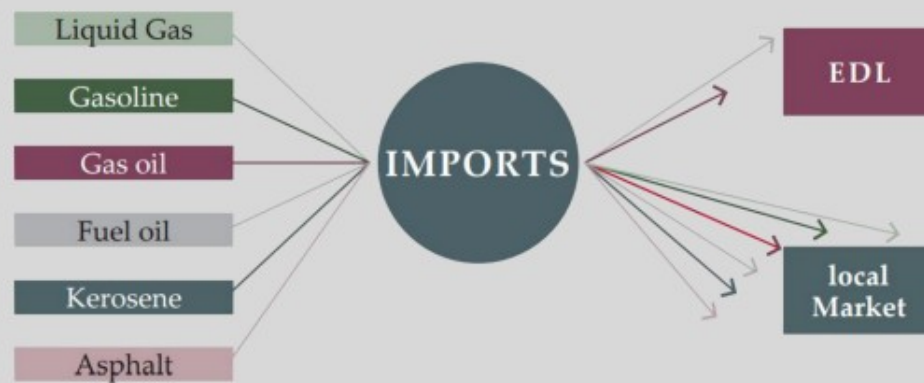
Baseline

- Based on AREF and NREAP template of the LAS
 - 2010 as the baseline year
 - Primary energy balance
 - Partial substitution method

**Primary
Energy**

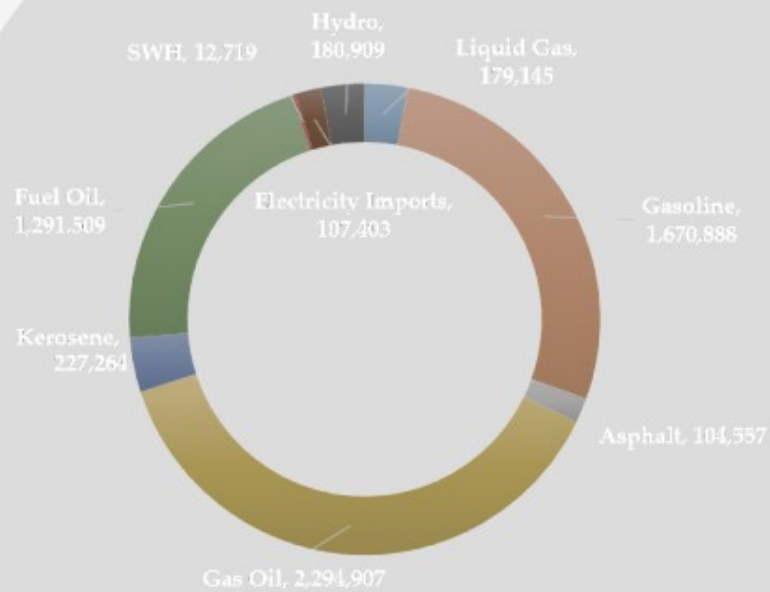


Oil



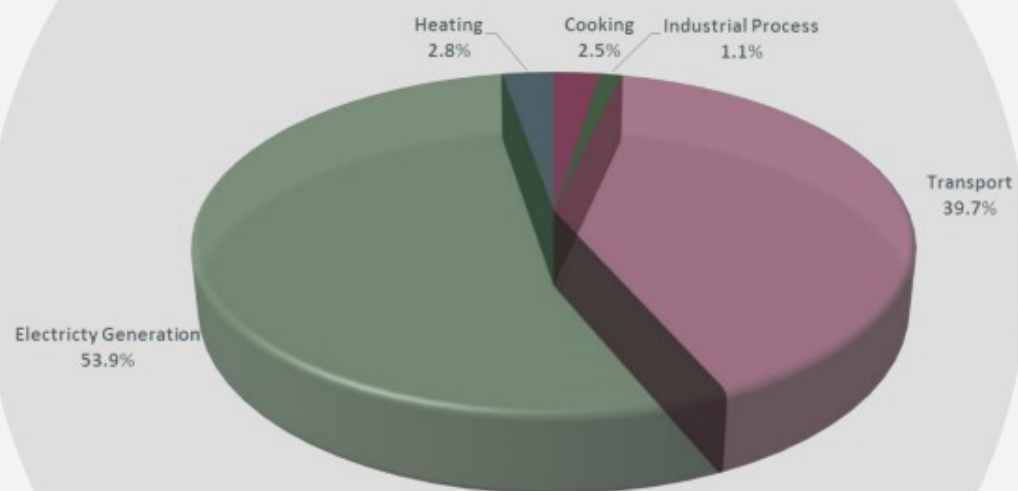
During the base year, total fuel imports of 5,768.3 ktoe were consumed in the different sectors in Lebanon.

PE Balance



Total consumption in 2010 amounts to 6,069,301 toe, out of which 96.8% were imported from outside Lebanon and the remaining (3.2%) was locally produced.

Sectorial Consumption



6,069 ktoe consumed in
the different sectors in
2010

Electricity

Electricity Demand 15,934 GWh

Generation
Profile

Electricity

Electricity Demand 15,934 GWh



EDL:12,089 GWh

Generation
Profile

Electricity

Electricity Demand 15,934 GWh



EDL:12,089 GWh



PG: 2,950 GWh

Generation
Profile

Electricity

Electricity Demand 15,934 GWh



EDL:12,089 GWh



PG: 2,950 GWh

Total Generation 15,039 GWh

Generation
Profile

Electricity

Electricity Demand 15,934 GWh



EDL:12,089 GWh



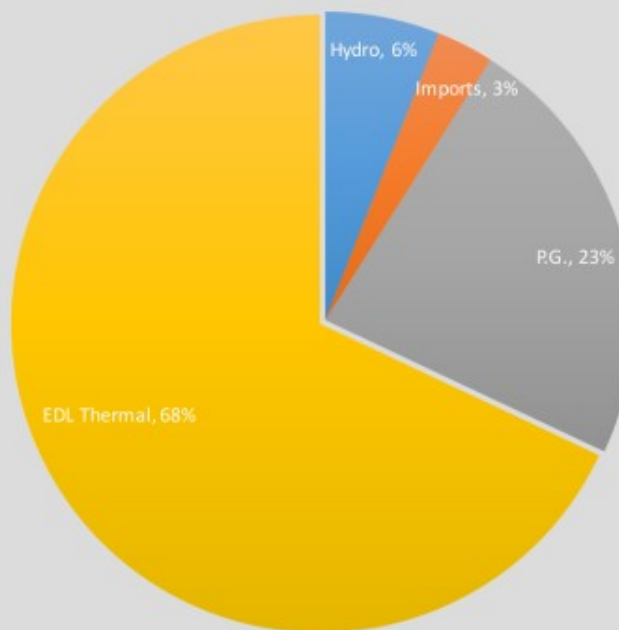
PG: 2,950 GWh

Total Generation 15,039 GWh

Deficit ~ 900 GWh

Generation
Profile

Generation Profile



Total Generation 15,039 GWh



Target

"The adoption of a national road map built on modern environmental concepts (green energy) and counting on renewable energy sources to reach 12% of Lebanon's needs by the year 2020."

Declaration of the Lebanese Government, 2009

Definitions

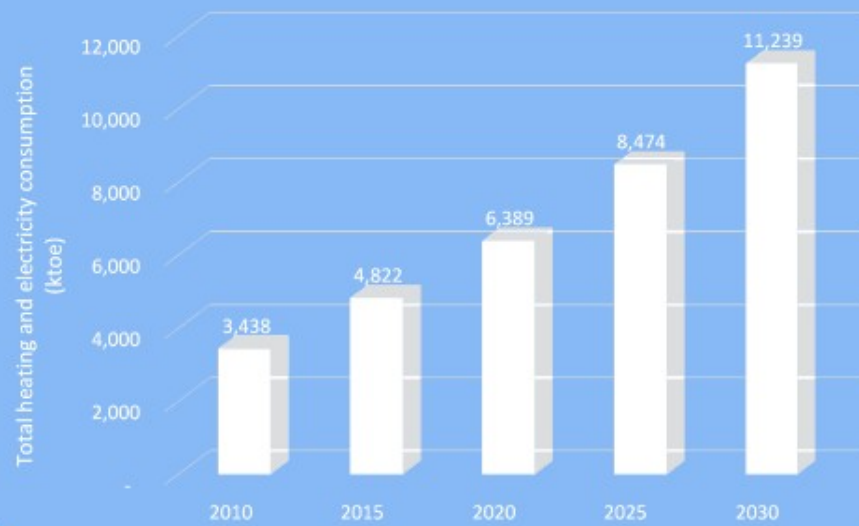
Projection

Target

Definitions

- 12% out of both *heat* and *electricity demand*.
- Based on *primary energy consumption*.
- Adopting **5.82%** demand increase since 2016
 - *Partial substitution* approach

Projection



6,389 ktoe consumed in 2020
for both electricity and heat
generation

Target

- Based on a consumption of **6,389 ktoe** in 2020
 - Based on the **12%** declaration
- In 2020, the equivalent of **767 ktoe** should be produced from RE



Methodology

Methodology



Methodology



Methodology



Methodology



Methodology



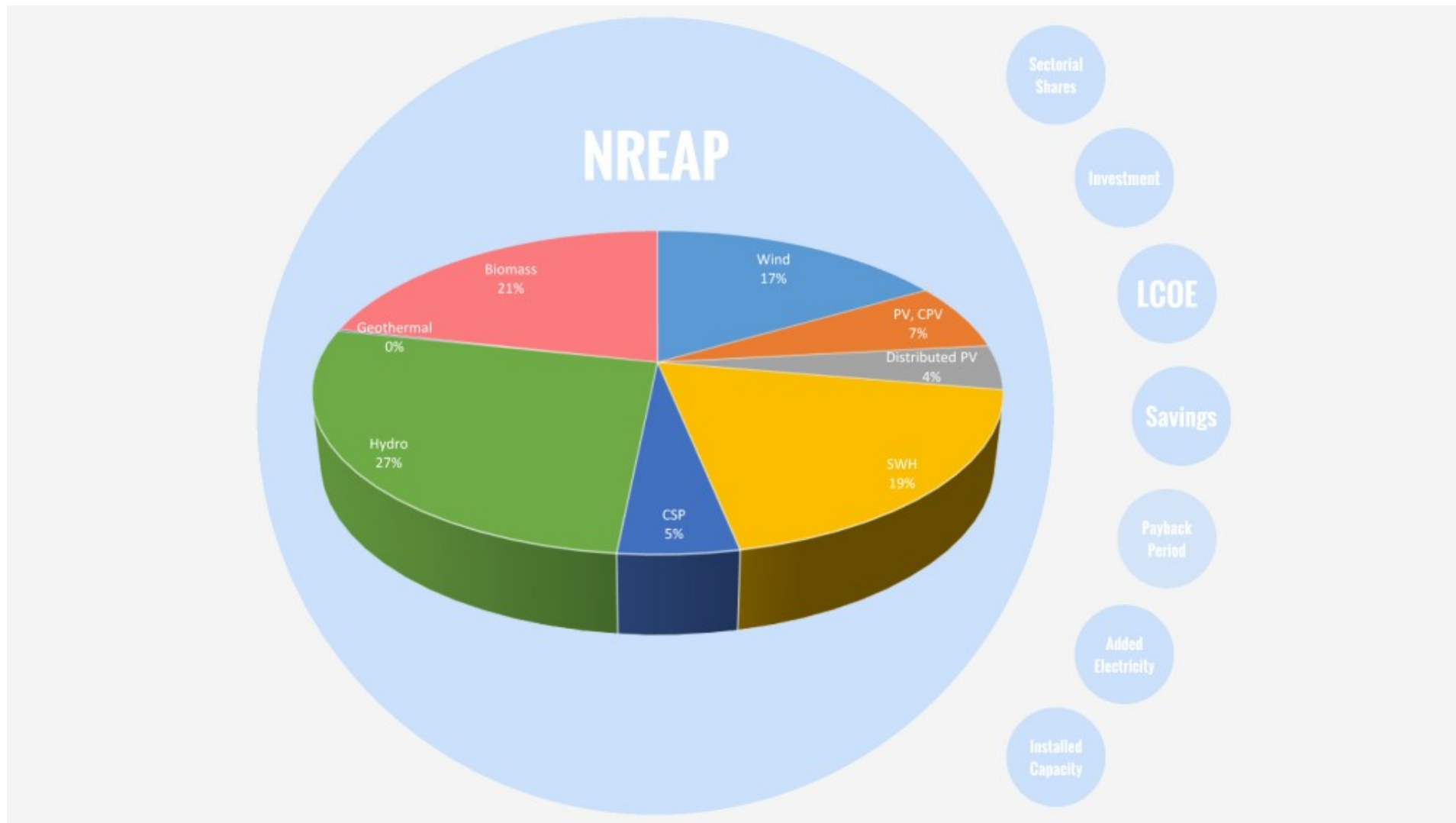
Methodology



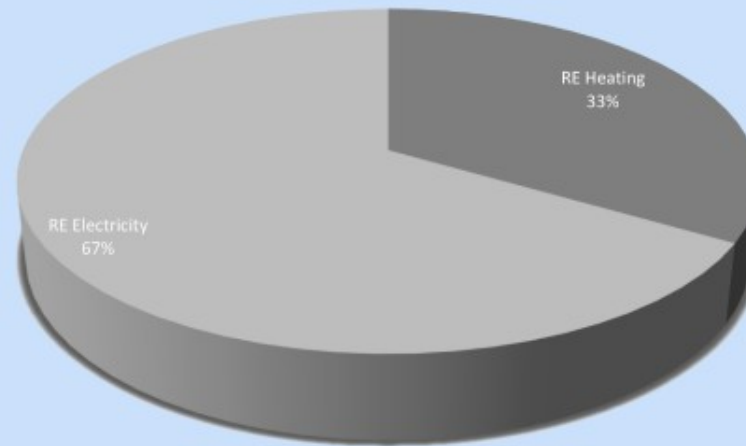


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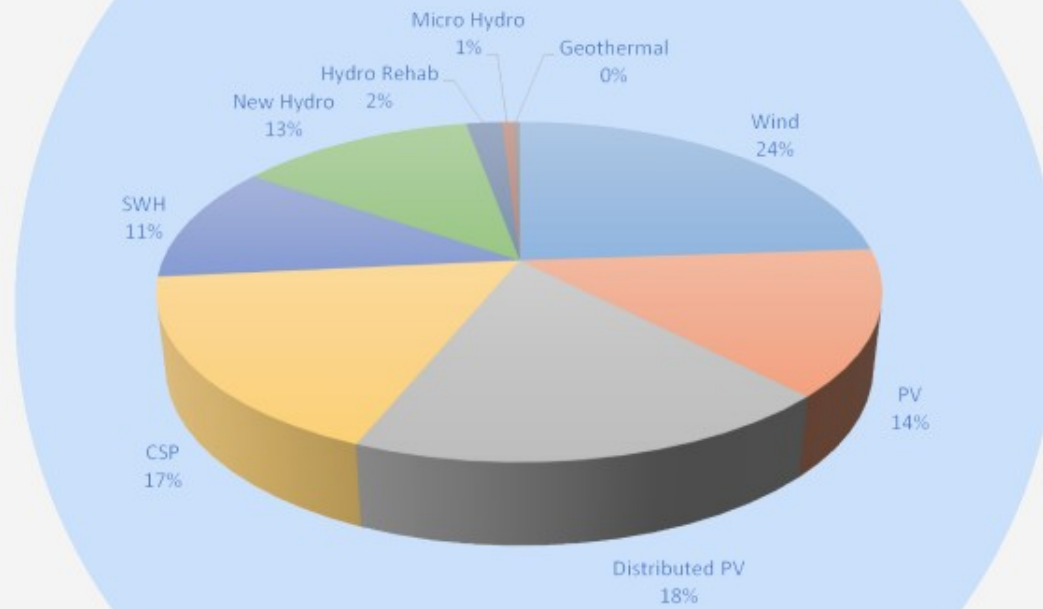




Sectorial Shares

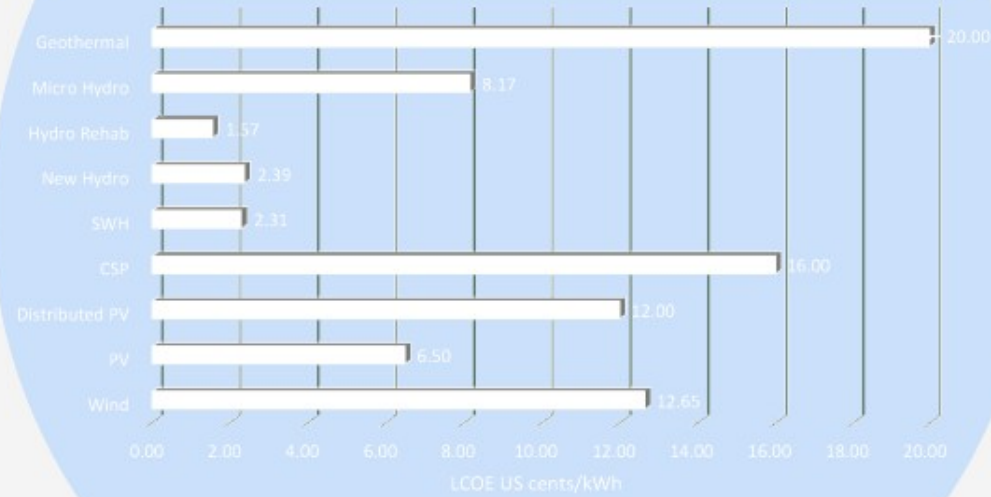


Investment

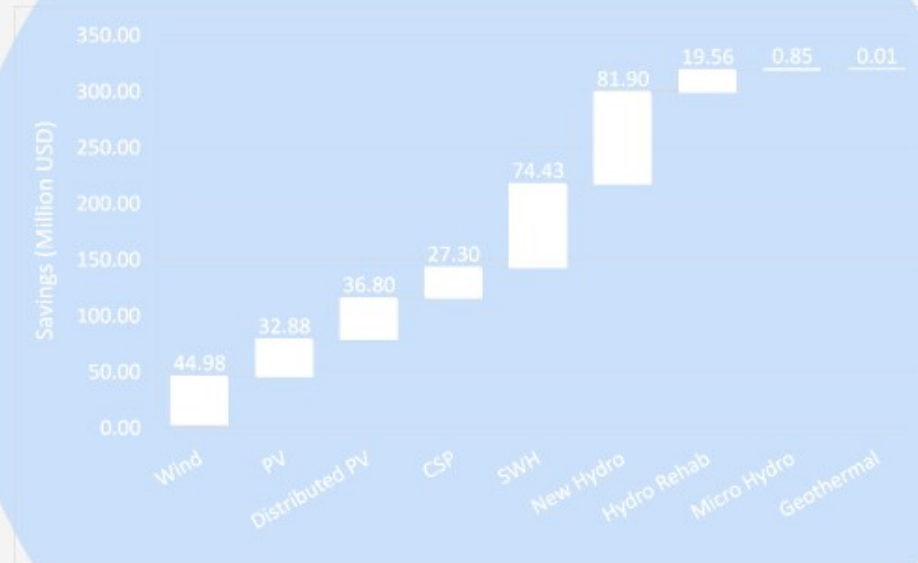


USD 1,737 million

LCOE

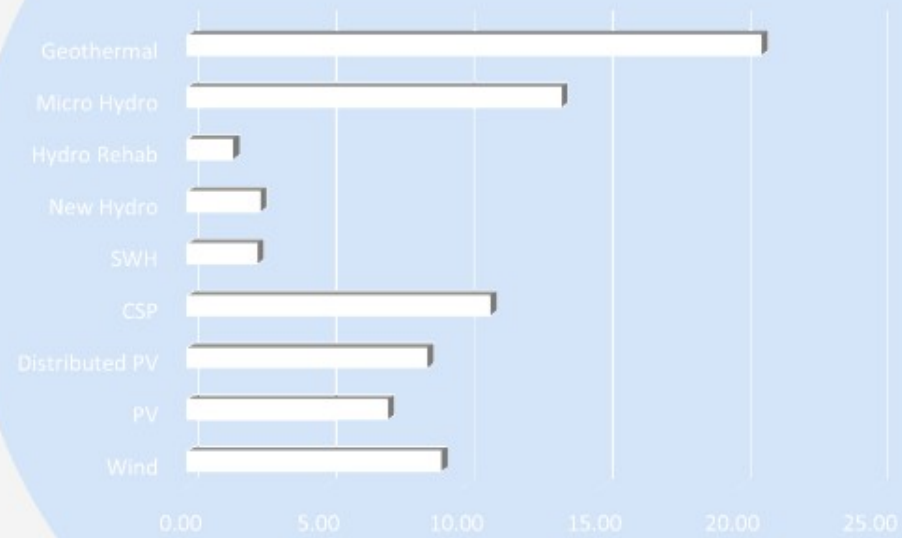


Savings

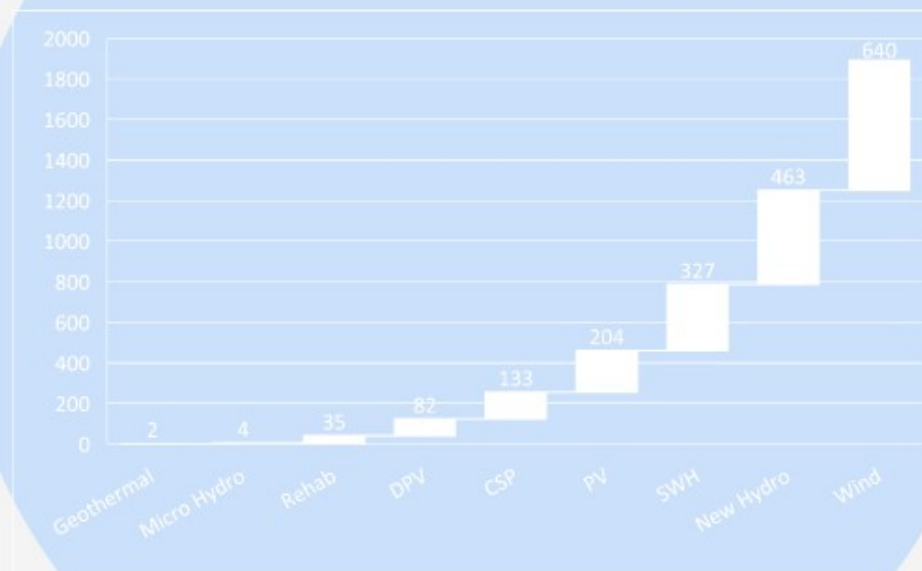


~319 Million USD/year

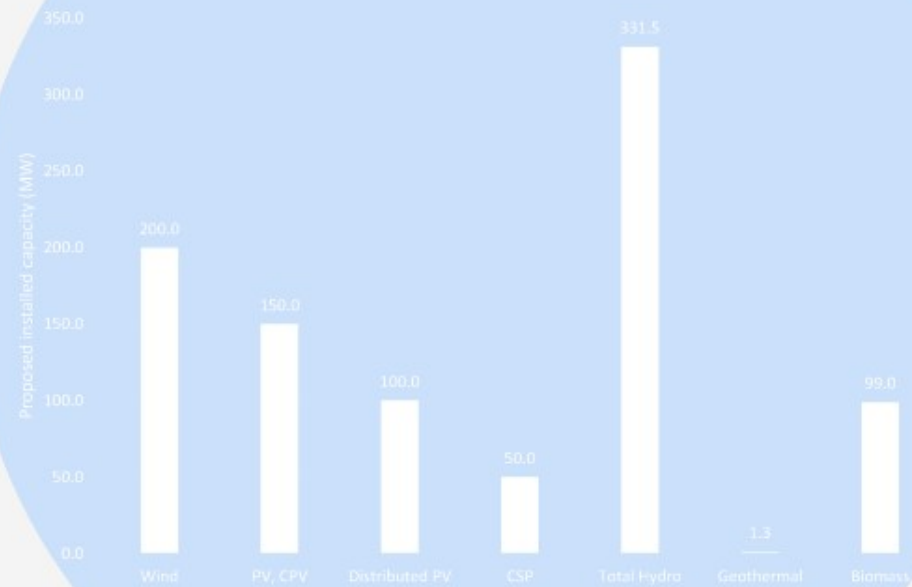
Payback Period



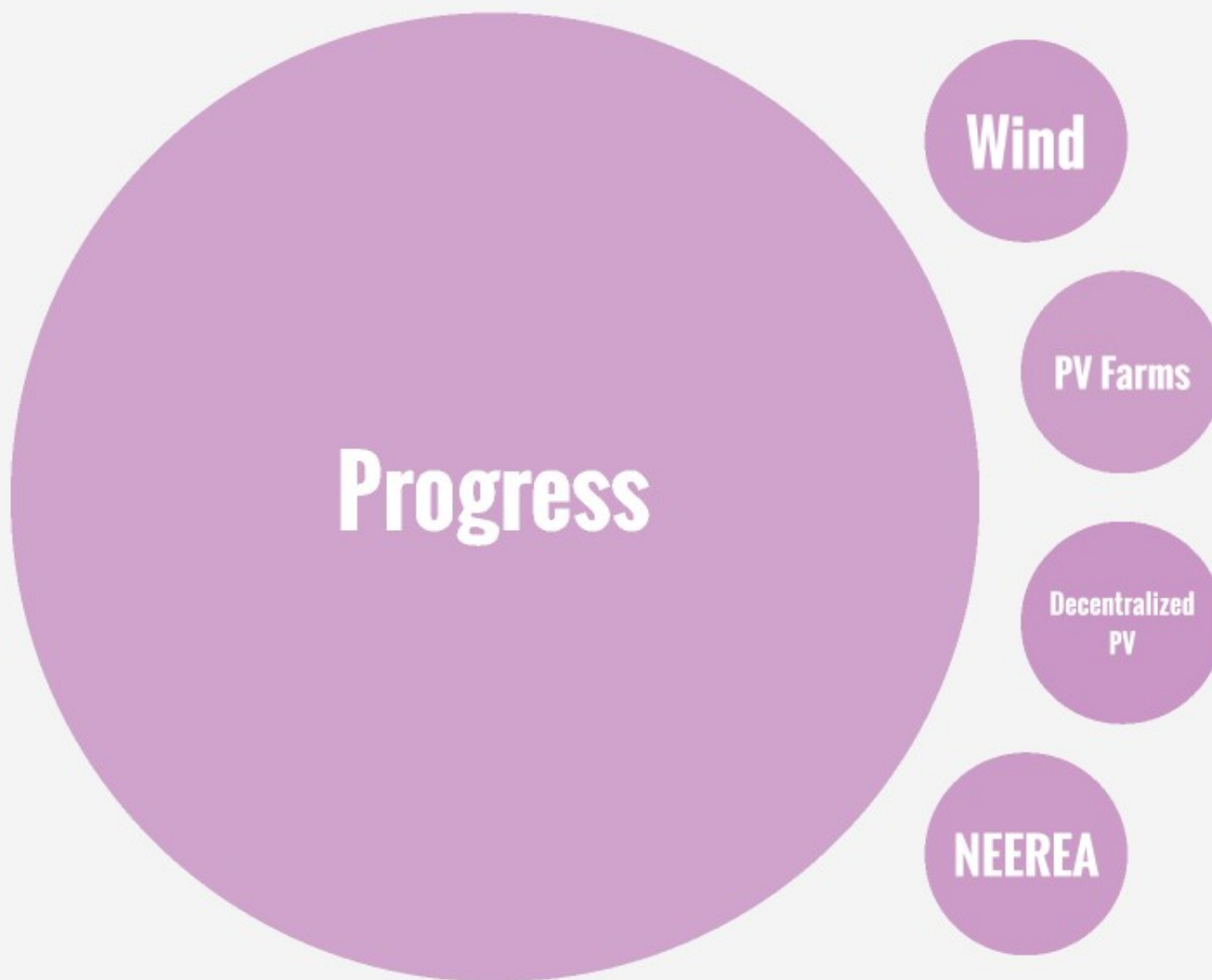
Added Electricity



Installed Capacity







Wind

- 3 wind farms
- 200 MW bid in final stages
 - First IPP licenses
 - 10.45 US¢/kWh
 - PPA to be issued soon

PV Farms

- RFP launched
- 120 to 180 MW
- 173 companies
- 265 proposals

Decentralized PV

- 9.45 MW installed in 2015
- 23 MW installed in 2016
- More than 60 MW are expected in 2017



NEEREA

- 500 projects financed
- 400 Million USD in loans
- More than 20 banks involved
- More than 100 companies involved





Thank You!



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