



**MEDREG**

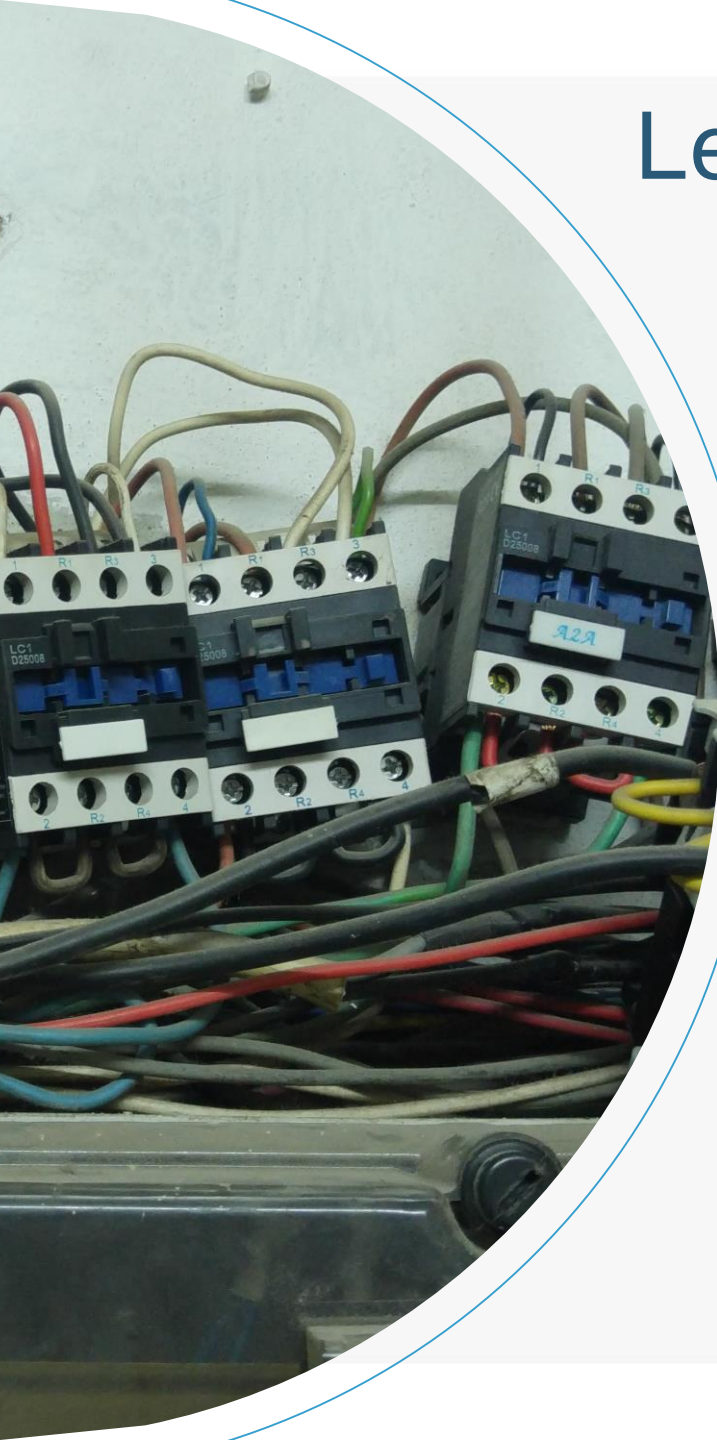
**Prosumers and active self-consumption:** Funding opportunities, incentive structures and pick-up of self-generation and (surplus) injection/selling into the grid

**The case of Mediterranean country: Lebanon**



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# Legal Framework: self-generation



- Law N° 462 of 2/9/2002 “Regulation of the Electricity Sector” – Article 26 allows self generation:
  - “generation equipment intended for private use with **power less than 1.5 MW** shall not be subject to the Authorization condition, provided that environmental, public health, and public safety standards are complied with, and based on specific standards issues by the Authority after consulting the opinion of the Ministry of Environment and concerned administrations and institutions”;
  - Generation equipment intended for private use with **power exceeding 1.5 MW** is subject to an Authorization by the Authority.
- Ministry of Environment memos 10 of 19/3/2011 and 11 of 29/7/2013 set minimum environmental standards for private generation facilities, mainly related to air pollution, noise pollution, liquid waste (oil and grease from maintenance), solid waste (tools, equipment and replacement parts), and ozone-friendly fire extinguishers.
- The Authority is not formed yet.
- No mention of modalities for connection of self-generation equipment/systems with the grid.



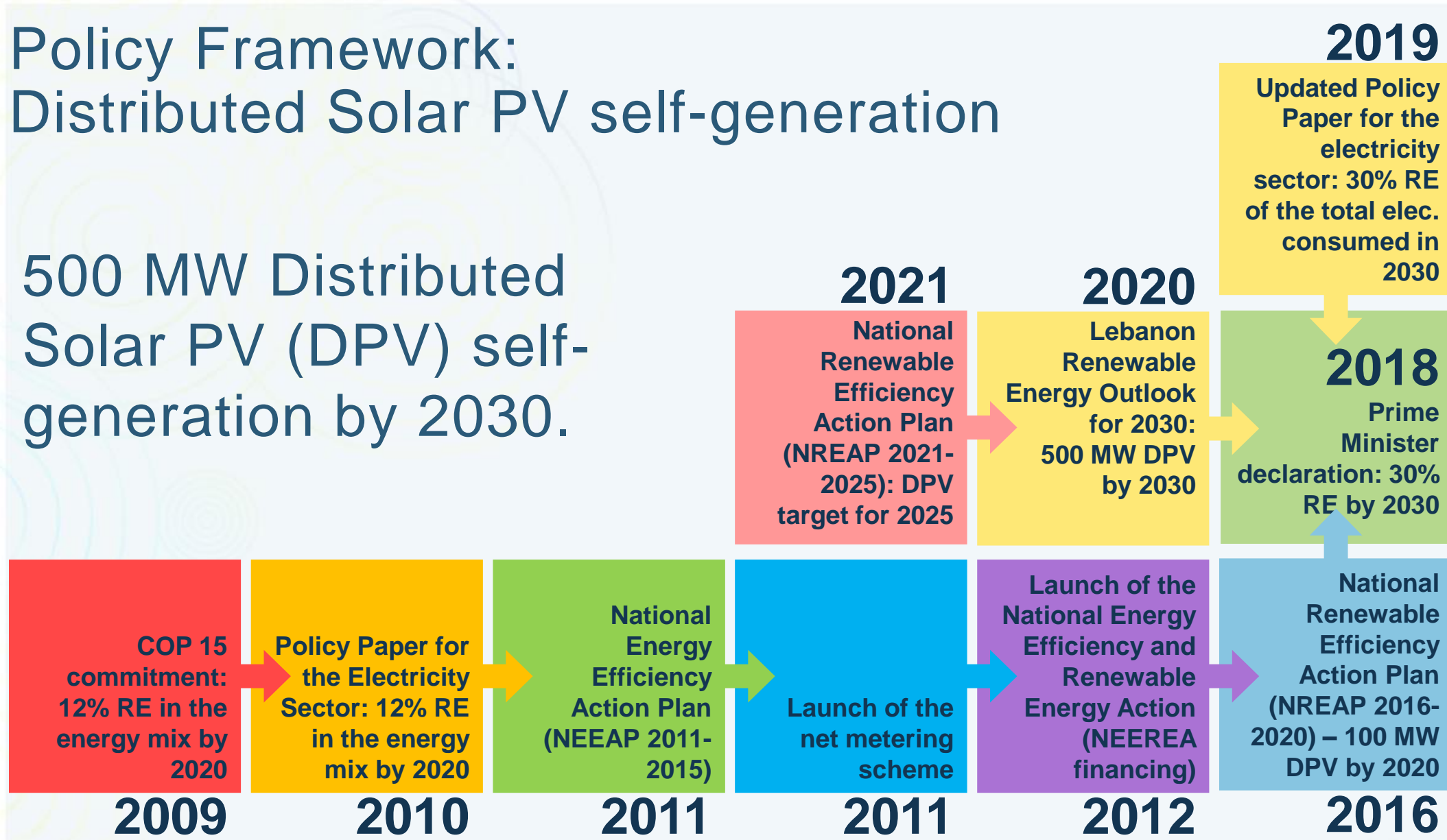
# Lebanese Electricity Sector: challenges and role of self-generation



- More than 96% of primary energy is imported.
- Significant tariff subsidies with a highly burden on the national budget.
- Significant gap between electricity demand and supply.
- Gap is covered by self-generation:
  - Private individual diesel generators (legal if power less than 1.5 MW and if Ministry of Environment's minimum environmental standards are complied with).
  - Neighborhood-level diesel generators (informal).
- Distribution of neighborhood-level generated electricity is done through informal networks (not connected to the national grid).

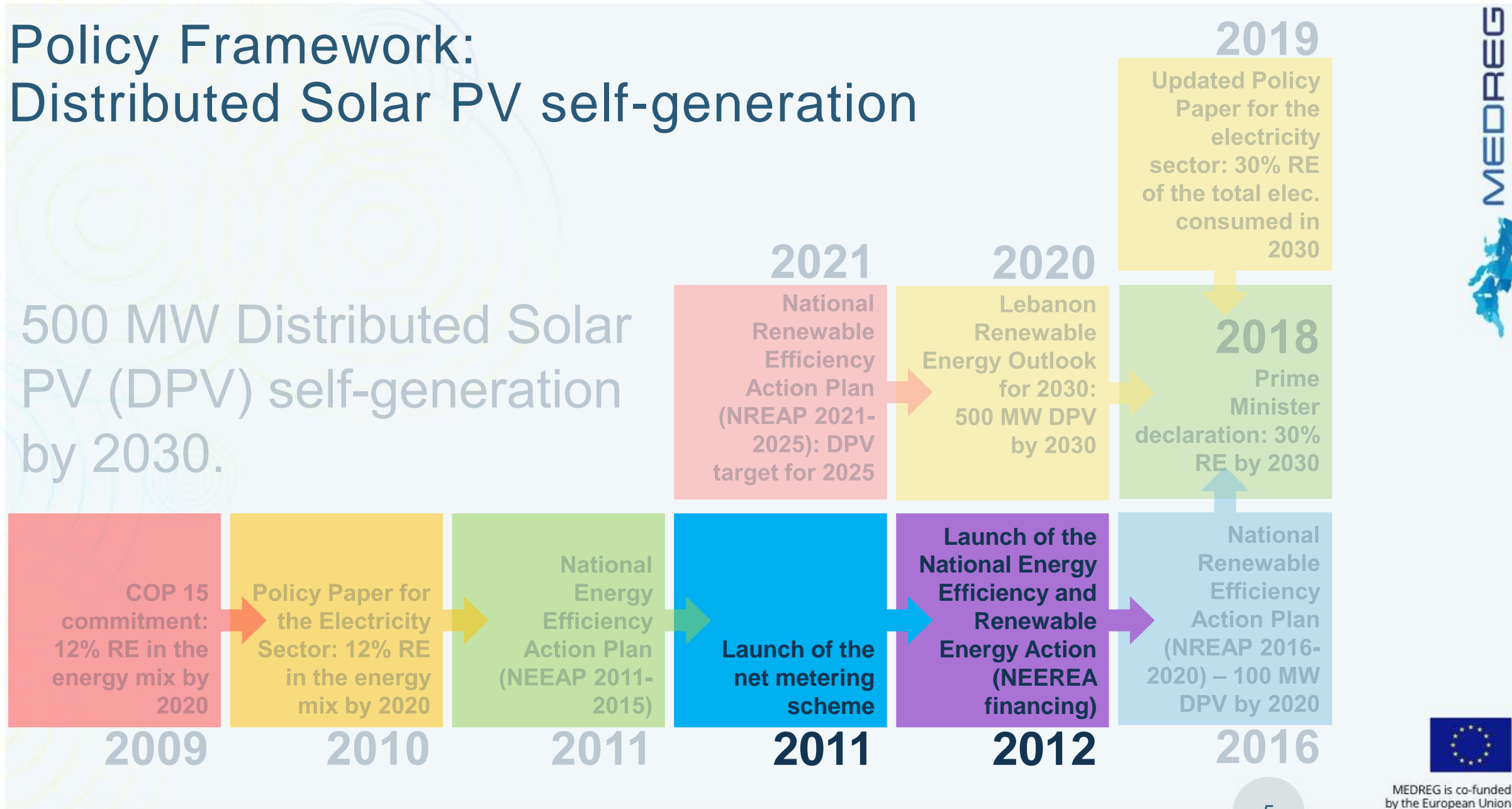
# Policy Framework: Distributed Solar PV self-generation

## 500 MW Distributed Solar PV (DPV) self- generation by 2030.



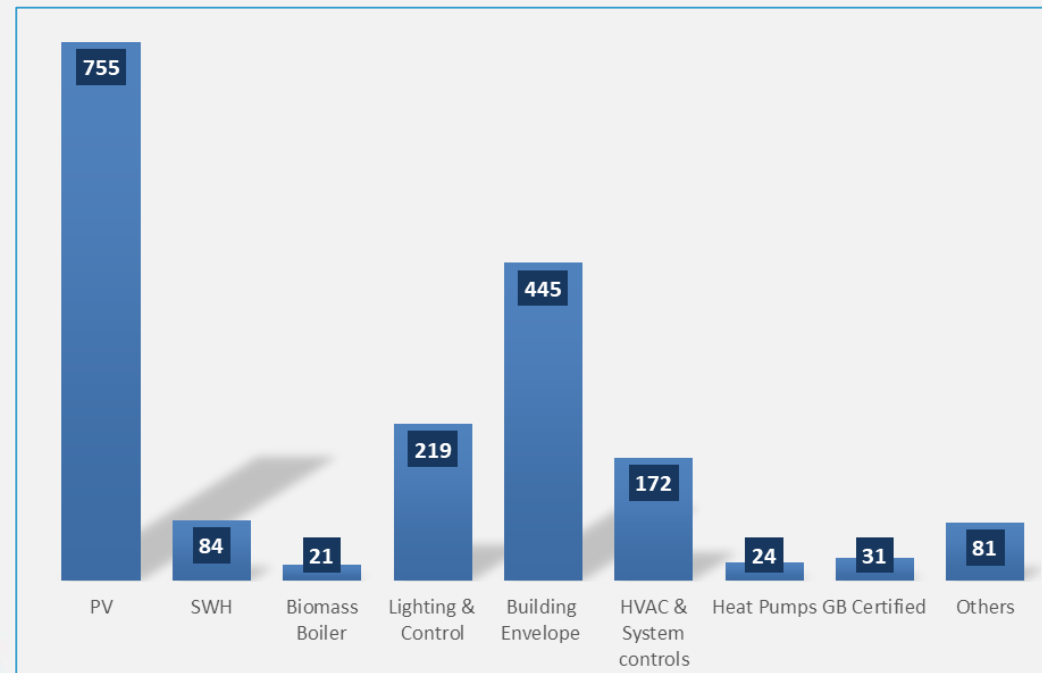
# Policy Framework: Distributed Solar PV self-generation

500 MW Distributed Solar PV (DPV) self-generation by 2030.



# NEEREA Financing Mechanism

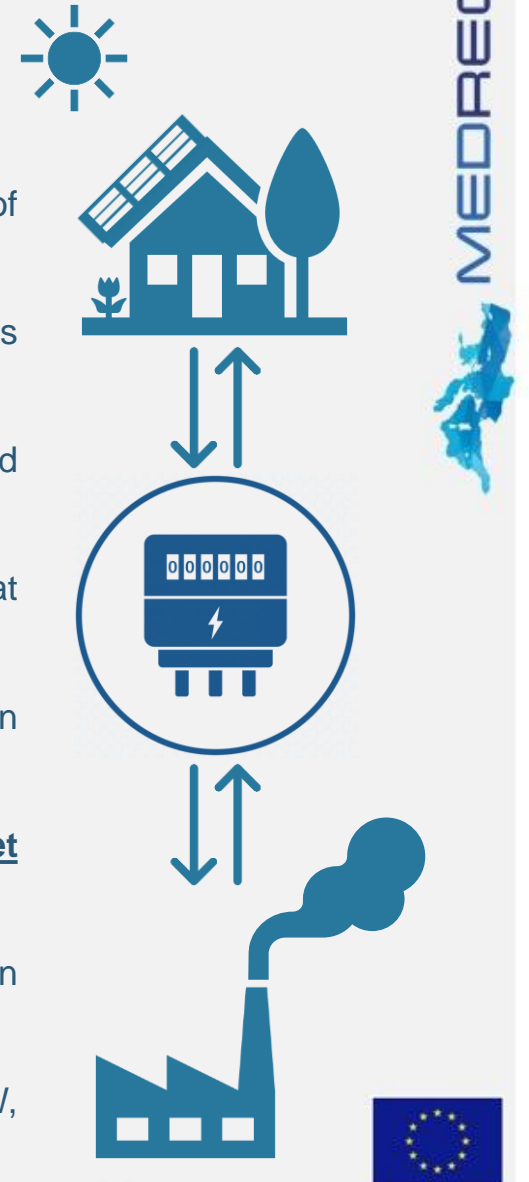
- Low-interest financing over a long repayment period through the commercial banks.
- Launched and supported by the Central Bank of Lebanon (BDL).
- Technical assistance by LCEC.
- Around 1,000 projects were approved by June 2020 (more than 1,800 energy efficiency and renewable energy measures).
- More than 600 Million USD invested between 2012 and 2020 (101 Million USD in solar PV projects).
- 76% of the number of projects are solar PV.



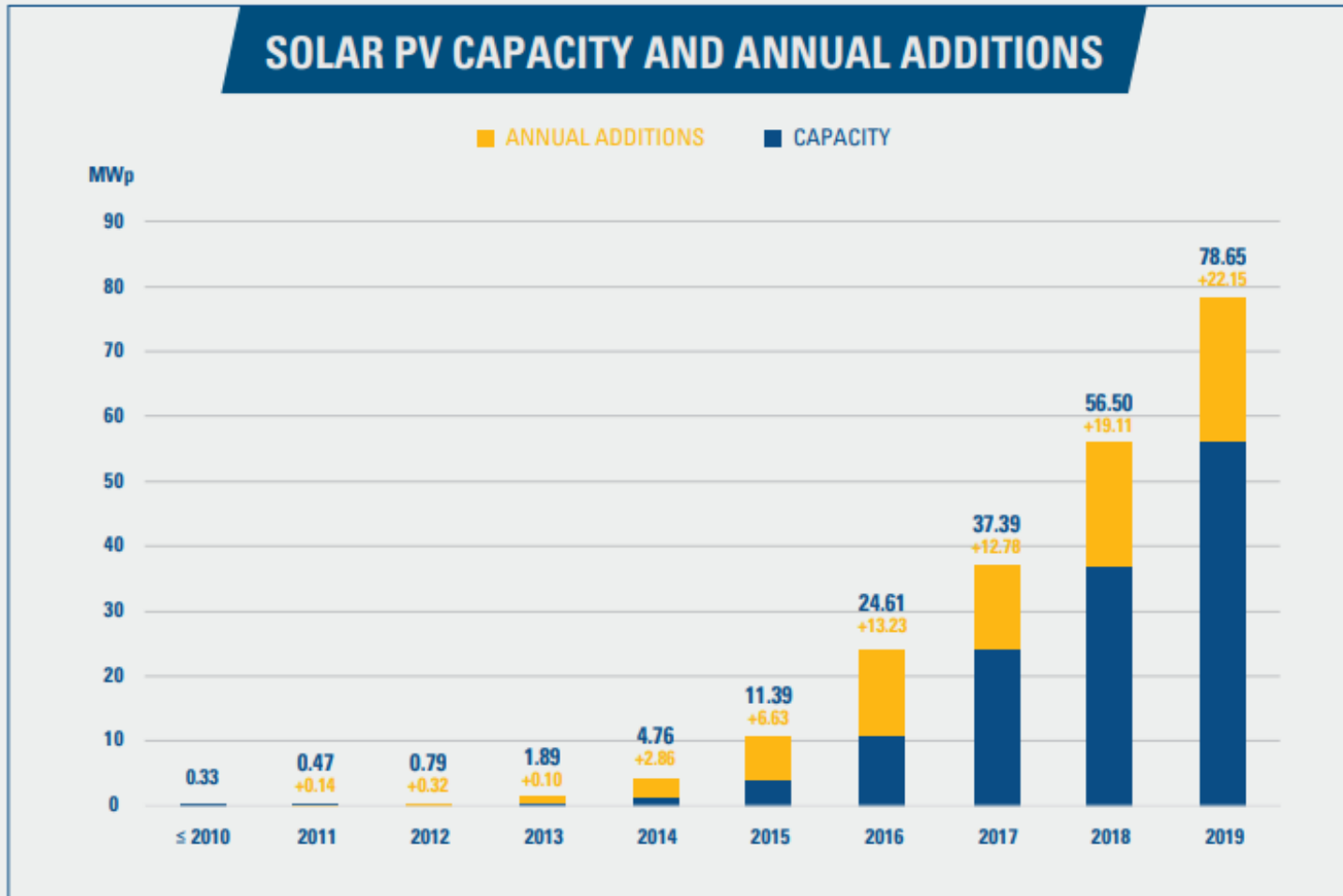


# Net metering Scheme

- Aimed for **consumers to** be able **connect their on-site renewable energy systems**, with the main purposes of satisfying their local demand for electricity, **and** wishing **to export any excess to the grid**.
- Approval is subject to compliance with the required technical standards, and safety requirements (checklist is publicly available with the application form).
- Consumer is able to export generated renewable electricity when the demand is low, and reduce the imported electricity, when the on-site demand is high, thus maximizing the value of the renewable energy sources.
- Any **excess electricity** fed to the grid by the renewable energy system **will be deducted from the utility bill** that is issued every two months.
- If a producer/consumer exports renewable electricity more than his/her total electricity consumption in any given billing period, then the **excess balance is transferred and credited to the next billing period**.
- This process happens over 1 year (January to December), where **at the end of the year the meter will be reset** again to zero.
- **One can apply** to a net meter by filling in the net metering application and uploading all the needed documentation **online**.
- Around **865 net meters** are installed and operational with a total Solar PV capacity of more than 21.5 MW, including residential, commercial, and industrial customers.



# Impact: the Distributed Solar PV self-generation sector



- Constant increase in solar PV installations.

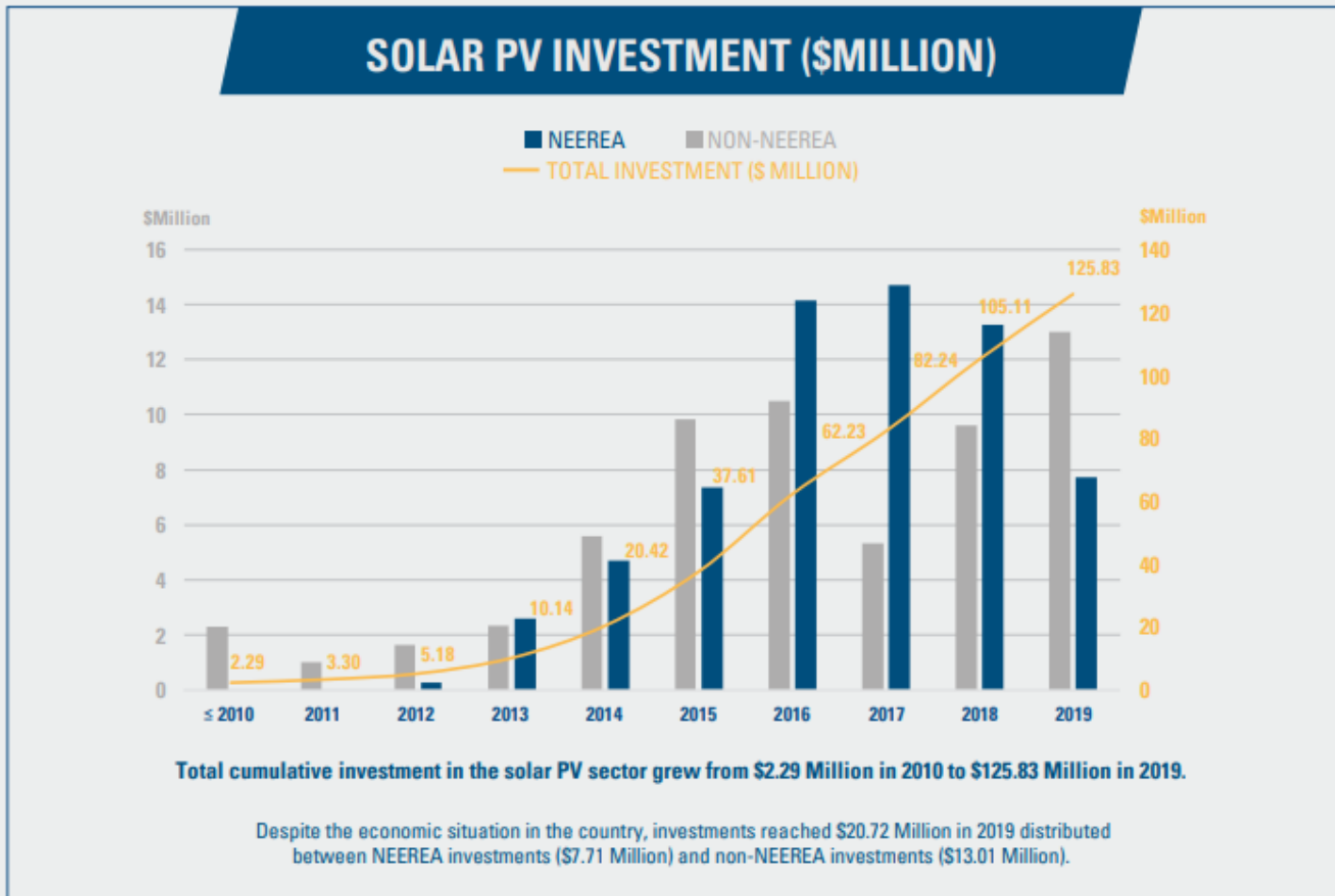
Source: The 2019 Solar PV Status Report for Lebanon (<https://lcec.org.lb/our-work/lcec/solarpvreport>)



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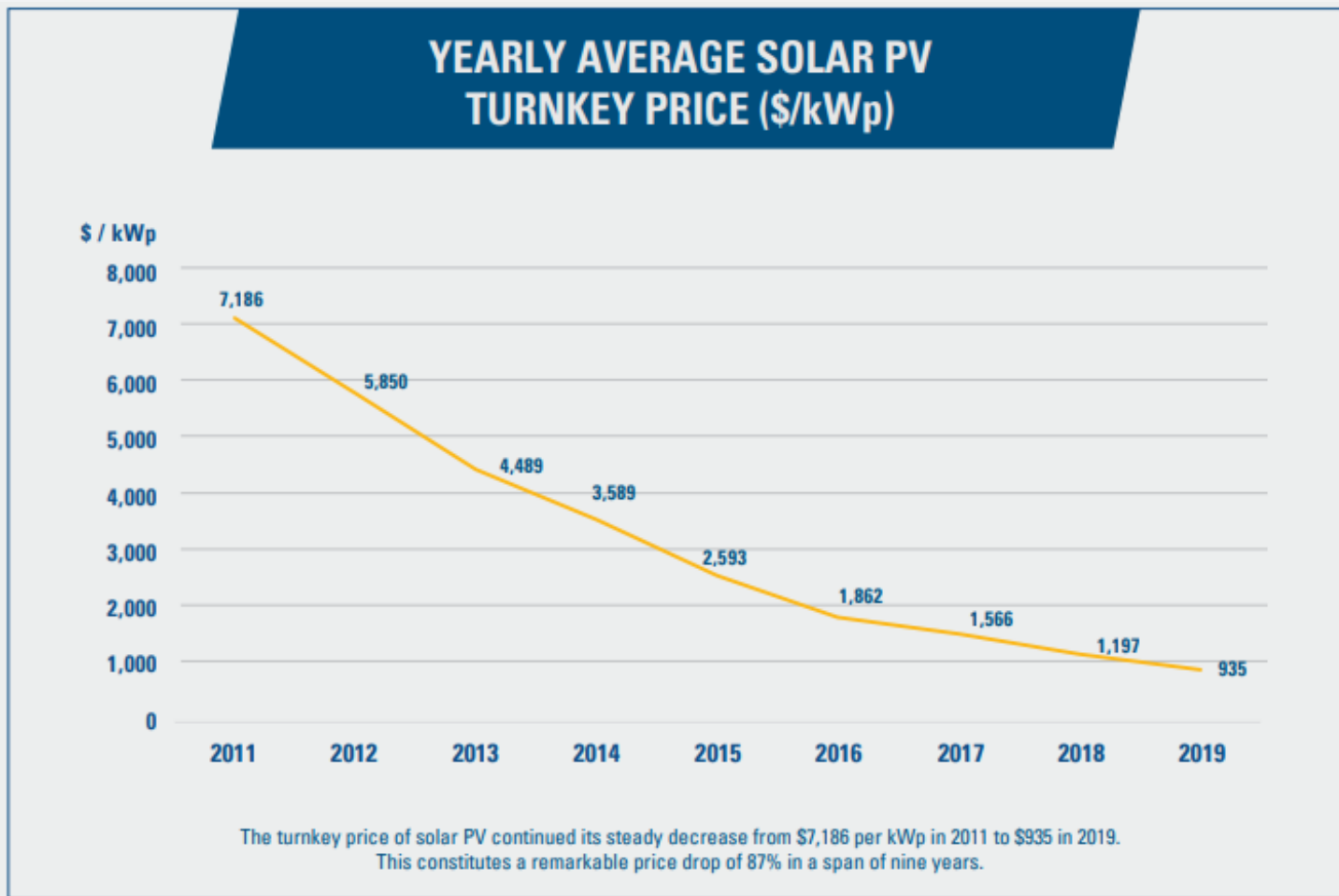
- Constant increase in solar PV installations.
- Constant increase in total investments in the sector.

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# Impact: the Distributed Solar PV self-generation sector



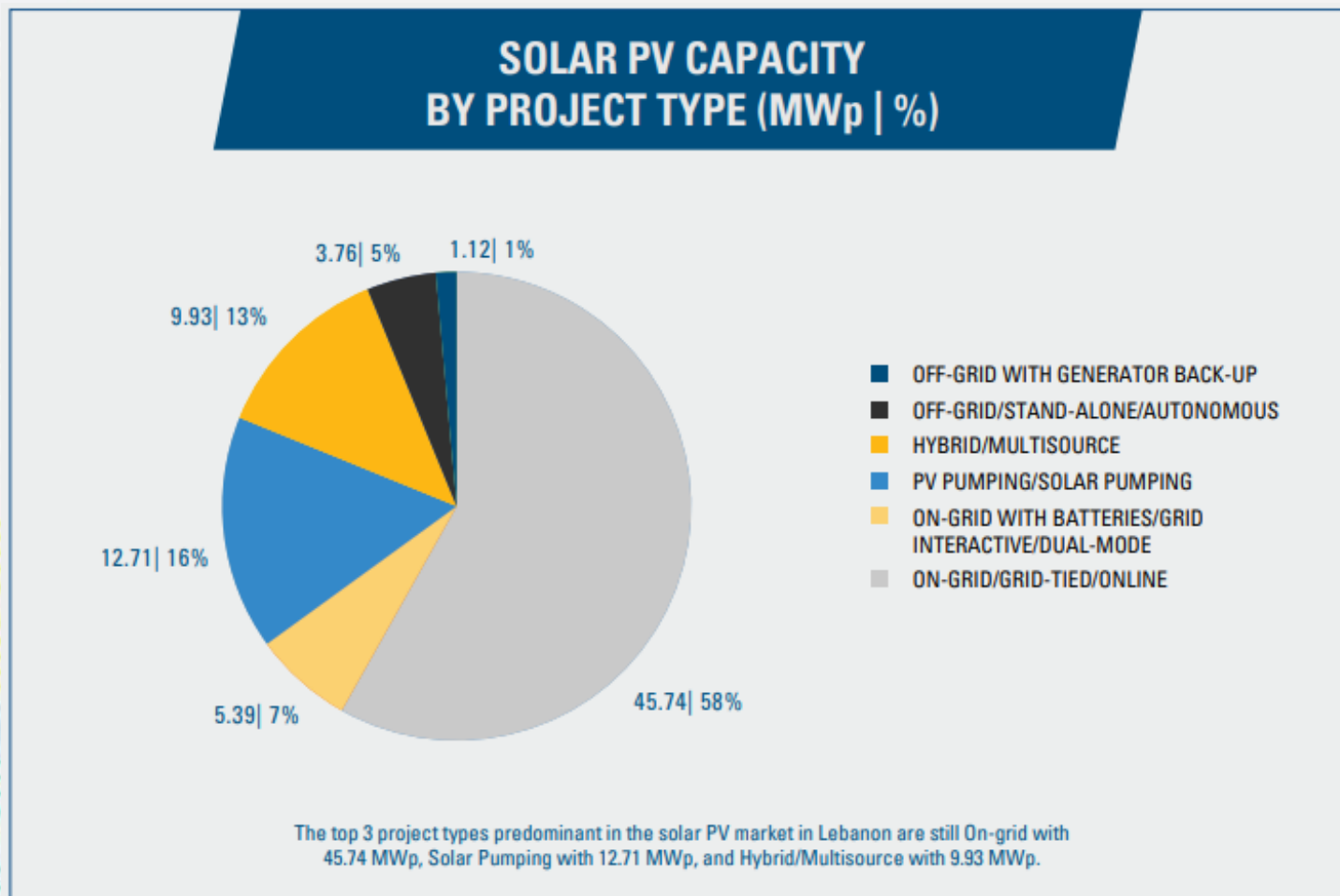
- Constant increase in solar PV installations.
- Constant increase in total investments in the sector.
- Constant reduction in turnkey price.

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# Impact: the Distributed Solar PV self-generation sector



- Constant increase of solar PV installations.
- Constant increase in total investments in the sector.
- Constant reduction in turnkey price.
- More than 65% of the solar PV installations are connected to the grid.

Source: The 2019 Solar PV Status Report for Lebanon (<https://lcec.org.lb/our-work/lcec/solarpvreport>)





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