



Federal Ministry
for Economic Affairs
and Energy



MITTELSTAND
GLOBAL
ENERGY SOLUTIONS
MADE IN GERMANY

Project Development Programme (PDP)

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Regulatory Framework Conditions for Commercial and Industrial scale PV Solar Applications in Jordan and Lebanon

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Facilitator

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für Internationale
Zusammenarbeit (GIZ) GmbH

AGENDA

REGULATORY FRAMEWORK - JORDAN

- Licensing
- Net metering /Electricity Sales
- Wheeling
- Leasing
- PPA

REGULATORY FRAMEWORK– LEBANON

- Market Structure
- Renewable Energy Plan
- Net Metering
- Licensing
- Third-Party Ownership Business Model

LICENSING

A- **No person is allowed** to construct, own or operate [...], except in accordance **with a license** issued pursuant to this Law (*Energy Law on Renewable Energy and Energy Conservation*) or in accordance with a permission granted by the Council of Ministers [...]

B- Notwithstanding paragraph (A) of this Article, a person may **without holding a license**:

- 1- Construct, own or operate an undertaking for generating electric power **not exceeding 1 megawatt (MW)** in aggregate at the same site.
- 2- Construct, own or operate an undertaking for distribution of electric power to serve a peak demand **not exceeding 100 kilowatts (kW)** in aggregate at the same site.

LICENSING

The Commission may by a directive grant exemption to a class of persons from the requirement of:

- 1- having a generation license for a power station with an installed capacity **not exceeding 5 Megawatt** in aggregate at the same site, [...]

NET METERING / WHEELING

Net metering: Is a policy allowing off-takers to self-supply and export their excess generation to the grid, receiving a credit on their bill rather than a cash payment.

Advantages:

- Excess electricity can generate income / savings
- Can remove need for electricity storage (“grid becomes battery”).
- Eases grid pressure during peak demand hours.

Wheeling: Allows power to be produced at one location, transmitted over the wires, and delivered to meet self-consumption needs somewhere else on the network

Advantages:

- Company ground distant from the factory side can be used to deploy Solar PV
- Least cost electricity can be transferred to where needed

NET METERING

Article (10)

a- Any person, including small Renewable Energy Facilities and homes that have Renewable Energy Systems for the generation of electrical power, may sell the generated electrical power to the **Bulk Supply Licensees** and to the **Retail Supply Licensees**.

b- The size and nature of such Renewable Energy Facilities and the **selling price** of the generated electrical power shall be specified in accordance with instructions to be issued by the Commission. The **selling price** of such power should **not be lower than the purchase tariff** specified by the licensees, [...].

NET METERING / ELECTRICITY PRICING

Article (3)

(A)

1. A user who has a **one-phase subscription** may install and use renewable energy sources systems that **cannot exceed** his **monthly consumption rate** for the **previous year** from the date of submitting the request for linkage to renewable energy sources.
2. The user of the **new one-phase subscription** may install and use renewable energy sources systems and **cannot exceed** the **electric load** that the distributor estimates [...].

NET METERING / ELECTRICITY PRICING

Article (3)

(B)

1. A user who has a **three-phase low voltage subscription** may install and use renewable energy sources systems that **cannot exceed** the **actual consumption rate** of the previous year.
2. The user of the **new three-phase subscription** may install and use renewable energy sources systems that **cannot exceed** the **electric load** that the distributor estimates, [...].
3. A user with a **three-stage subscription** to the **medium** voltage may install and use renewable energy sources systems that **cannot exceed** the **actual consumption rate** of the previous year.

(C)

Notwithstanding the provisions of paragraphs (a) and (b) of this Article, the renewable energy sources systems installed in the **same geographical location** of the subscriber **shall not exceed (5) megawatts regardless of the number of subscriber subscriptions** at that site.

NET METERING / ELECTRICITY PRICING

Article (4)

(A)

1- **Electricity consumption**: Difference between user's **exports to** and **imports from** the distributor's network on a monthly basis in the unit of kilowatt-hours

2- Energy **extracted from** the DN > energy **exported to** DN = User to pay the value of the net amount of energy to the distributor per month.

3- Energy **exported from** the user systems > energy **extracted from** the network = Distributor to rotate surplus (kWh) to the account of the following month + final financial settlement until December 31 of each year.

(B) The tariff for selling electricity from the user to the distributor shall be as follows:

Tariff of selling electricity from renewable energy sources

Source of Renewable Energy	Tariff (Fils/kWh)
Solar Energy	120
Hybrid Sources	95
Other Sources	85

WHEELING

Article (4)

Any person may establish and own a generation station and link it to the transmission system or distribution system for the purposes of **generating electricity** and transferring it through the transmission system or the distribution system or both to **feed a consumer [....]**.

Article (5)

[....], the user shall be subject to **electricity loss rates** and **wheeling charges** once using the transmission and/or distribution systems:

Type of Connection	Percentage Electricity Loss (%)	Wheeling Charges (Fils/kWh)
Connection to TS to feed consumer connected to TS	2.3	4.5
Connection to DS to feed consumer connected to DS	6	7
Connection to TS to feed consumer connected to DS	2.3 TS + 6 DS	4.5 TS + 7 DS

LEASING / LEASE - TO - OWN

Leasing (Lease – to –own) model: Off-taker pay a monthly fee, fixed or tied to the kWh consumed to the developer for leasing of a solar PV system (with option to purchase system after leasing agreement ends). If the system is connected to the grid the off-taker can benefit directly from feed-in-tariff or net-metering scheme.

Advantages:

- High upfront costs born by developer → beneficial for businesses that may have difficulty in accessing finance to pay for a system upfront.
- The maintenance and risk of the system not operating is born by the developer. If the system does not operate correctly, the customer is able to stop making their lease payments under a performance contract.
- The developer realizes a regular cash flow over the lifetime of the panels.
- Competence factor, which refers to the unwillingness and/or lack of competence to handle planning, installation etc. is covered by the developer / installation company.

A leasing model is possible in Jordan under current regulation. Leasing as a type of business model is viable and popular particularly for larger industrial and commercial users

PPA

A power purchase agreement (PPA) is a contract between an electricity producer and an electricity consumer or reseller (off-taker). In the case of Jordan there is only one off-taker for the PPA model, namely the state-owned transmission system operator (TSO) NEPCO on behalf of the MEMR

→ Thus no power purchase agreement (PPA) possible between off-taker and German developers.

Lebanon

REGULATORY FRAMEWORK– LEBANON

- Market Structure
- Renewable Energy Plan
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MAJOR PUBLIC ENTITIES INVOLVED

Ministry of Energy and Water

Ministry of Environment

Electricité du Liban (EDL)

Banque du Liban (BDL)

Lebanese Center for Energy Conservation
(LCEC)

National Energy Efficiency and Renewable
Energy Action (NEEREA)

Investment Development Authority of Lebanon
(IDAL)

Urban Planning Stakeholders (DGUP, HCUP,
CDR)



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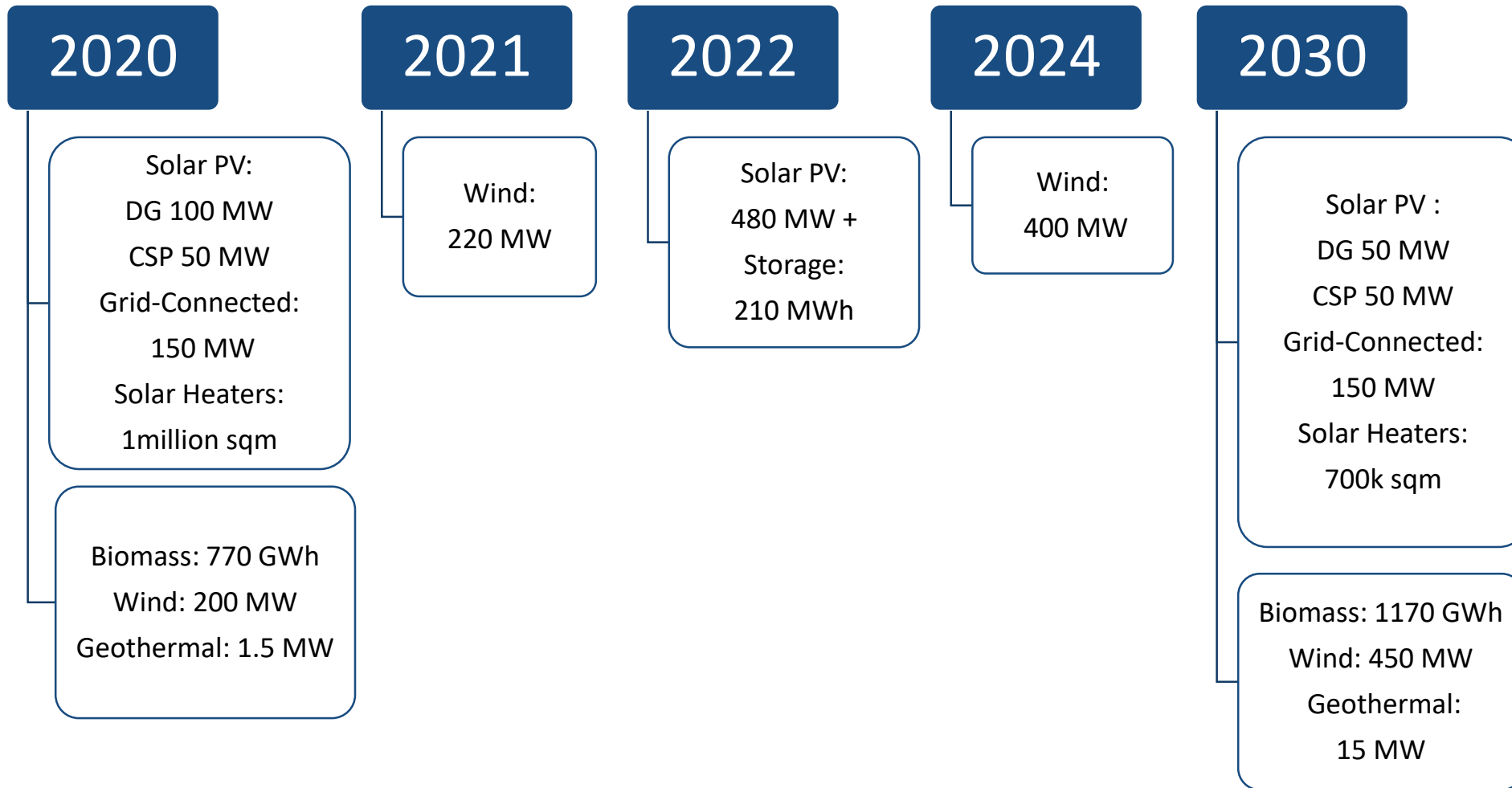
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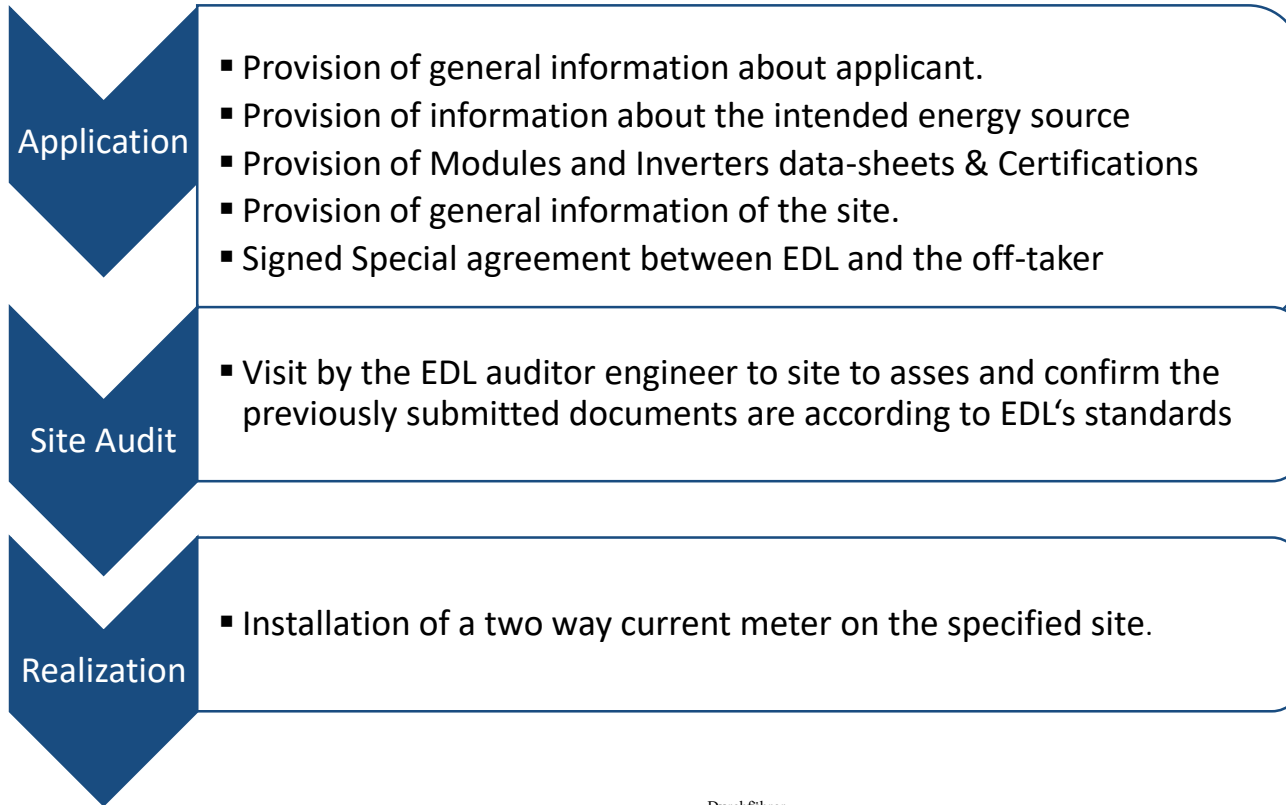
RENEWABLE ENERGY PLAN

(POLICY PAPER MINISTRY FOR ENERGY AND WATER)



NET METERING

- EDL allows distributed generation resources to sell electricity to the grid on a net metering basis.
- Depending on the time of tariff, the prosumer is compensated. Law 462 (2011)



Summer Season (April 1 - September 30)		Winter Season (October 1 - March 31)	
Night Rate (from 00:00 to 07:00)	80	Night Rate (from 00:00 to 07:00)	80
Day Rate (from 07:00 to 18:30)	112	Day Rate (from 07:00 to 16:30)	112
Peak Rate (from 18:30 to 21:30)	320	Peak Rate (from 16:30 to 20:30)	320
Day Rate (from 21:30 to 23:00)	112	Day Rate (from 20:30 to 23:00)	112
Night Rate (from 23:00 to 24:00)	80	Night Rate (from 23:00 to 24:00)	80

THIRD PART OWNERSHIP BUSINESS MODEL FOR PV

Leasing

Leasing acts as a shield against a high upfront costs of Solar PV plants.

On a small market of distributed PV generation, leasing is practiced however, no formal documentation from regulatory authorities exist.

PPA

IPPs can get into PPA agreements with regulatory authorities as an output of the tendering process and can sell electricity to EDL. However, on distributed scale no specific regulation is in place.

Thank you for your attention

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www.giz.de/projektentwicklungprogramm

www.german-energy-solutions.de