



WORKSHOP

“Limassol Municipality Blue Innovation Centre”

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The Cyprus’ Regulatory Framework for electricity generation and supply

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Outline

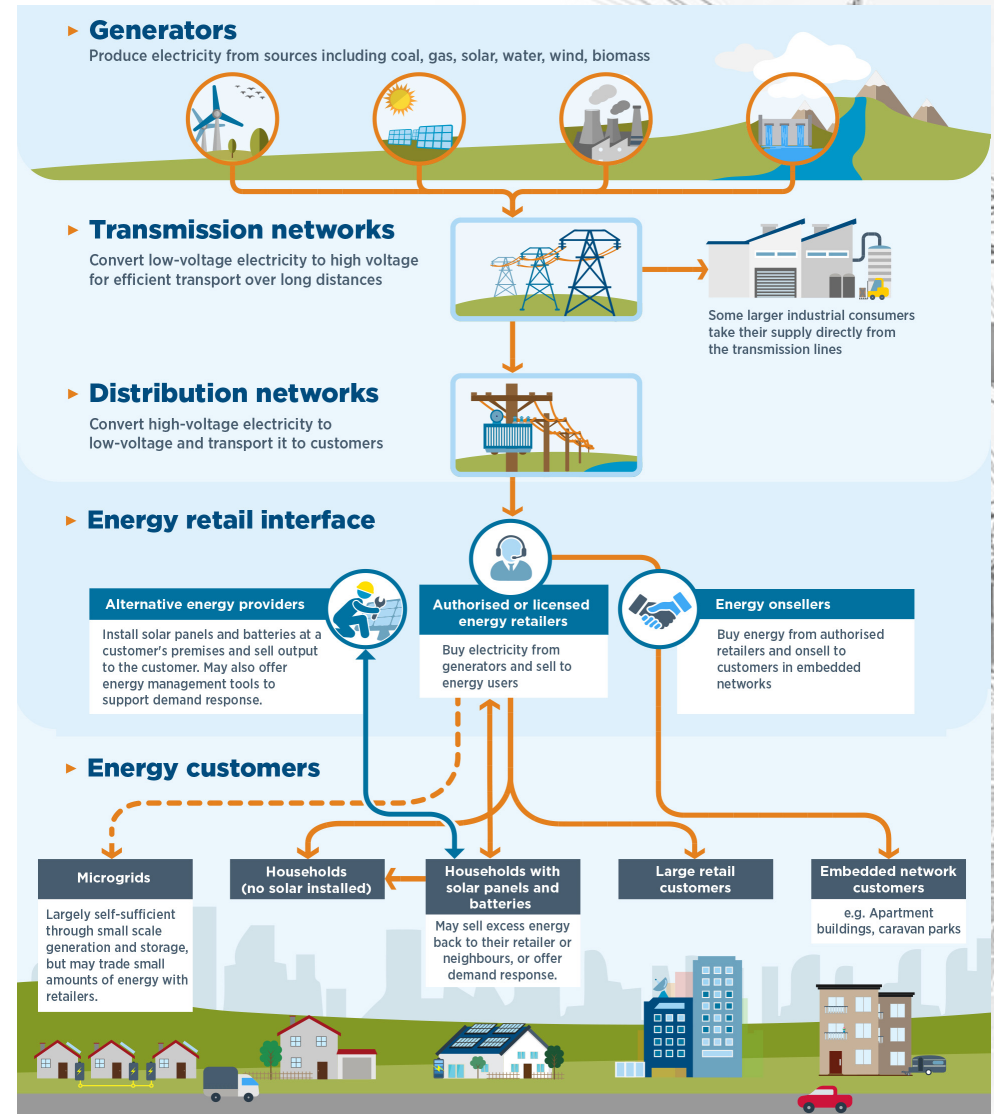
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- ❖ **Regulatory Framework for electricity supply**
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Competitive Electricity Market

Introducing Competition

- ❖ The combination of full market opening, unbundling of transmission activities, regulated access to the network and liberalisation of electricity trade is known as “**retail competition**”.
- ❖ Under retail competition, transactions among generators, end users and a number of possible intermediaries, such as retailers, power exchanges and brokers take place freely
 - within the “physical” constraints imposed by the network.
- ❖ On the demand side, end users are free to choose their supplier and to negotiate their contracts.
- ❖ On the supply side, generators can sell their electricity to any other market players.



Cyprus' Electricity Market Market Model

- ❖ The Trading and Settlement Rules (TSR) that implement the high level description in RD 01/2015 were prepared by the TSO that also acts as a Market Operator.
- ❖ The RD foresaw the implementation of **NET – POOL MODEL** (with bilateral contracts) as the best fit for the Cyprus' case.
- ❖ The TSR implemented the above model and was approved by CERA in May 2017 (v.2.0.0) with minor amendments approved in November 2021 (v.2.0.3) but not entered into force.
- ❖ Also v. 2.2.0 was approved in March 2022 that implements Demand Response as well as in-front of the meter Storage.



Cyprus' Electricity Market Model

All transactions of purchase and sale of electricity are conducted at a wholesale market level.

- bilateral physical forward contracts are notified to the Market Operator (MO) by Over-the-Counter (OTC) market gate closure.
- Suppliers and generators provide bid curves to a Day Ahead Market (DAM) on a half hourly basis and contracts are concluded at the DAM clearing price.
- This is followed by an Integrated Scheduling Process with a real time Balancing Mechanism that settles any real-time imbalances.
- an intraday market will be introduced 24 months after the full commercialization of the national electricity market.

1

Bilateral Contracts

(Years/ Months/Weeks before D-1 09:00)
Used by participants as long term risk hedging.

4

Integrated Scheduling Programming (ISP)

(D-1 16:00)
- An optimum market for the reserves and energy balancing
- An optimum technical and economic solution for System Operation.

2

Day Ahead Market

(D-1 13:00)
Participants can buy/sell to complement energy from their bilateral contracts
A mandatory “%” on the demand of the dominant supplier has to be provided through the DAM.

3

Intraday Market

(within trading day)
Allows reduction of imbalance as we get closed to real time.

5

Balancing Market

(Real Time)
RES can participate in this market based on their offers during the ISP.

Cyprus' Electricity Market

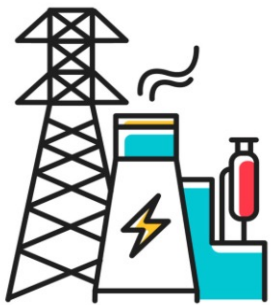
Current situation – Transitional Arrangements

- ❖ To cover the time until the full operation of the electricity market model, a transitory regulation for the electricity market has been in force since 2017 (RD 04/2017).
- ❖ The transitory regulation concerns “Bilateral Contracts”
 - producers and suppliers enter into Power Purchase Agreements (PPAs).
 - electricity is provided to final end-users in the context of the forward market.
 - settlements and imbalances are cleared by the Market Operator on a monthly basis.

Conventional / RES Producers \geq
50 kW
(incumbent is excluded)

Suppliers \geq 10 MW
(incumbent is excluded)

Customers with
STOD meters



Wholesale

Retail

Taking into account the comments of the Public Consultation on the Draft Decision on the "Implementation of Transitional Regulation in the Electricity Market of Cyprus prior to the full Implementation of the New Electricity Market Model (Amendment)", CERA has proceeded with the formulation of the respective Decision (239/2023) and the publication of the "New Transitional Regulation of the Electricity Market - **Version 1.10**" which has entered into force on the 1st of September 2023.

New Regulation on Cold Ironing

The approaches

- ❖ The engines of ships are considered major generators of harmful emissions since they run on heavy fuel oils.
- ❖ With the maritime sector responsible for transporting approximately 90% of world cargo, it faces enormous pressure to reduce its carbon footprint.
- ❖ Cold ironing is a term that denotes the process of providing shoreside electrical power to ships berthed at the port while their main and auxiliary engines are turned off.
- ❖ Two approaches for reducing carbon emissions:
 - The ship's load is met via self-generated electricity coming 100% from renewable energy sources installed on the ship.
 - Cold Ironing: Ship's engines are turned off when berthed at the port. It is plugged into an onshore power source and electricity is transferred to the shore-side supply without causing any disruption to the onboard processes and services.

New Regulation on Cold Ironing

Regulatory Framework for electricity supply

- ❖ Considering that the approach of Cold Ironing is adopted, there are various options by which electricity demands of the ships can be met.
 - The Port Operator enters into contract agreement with an Electricity Supplier that will cover 100% of the electricity demands of the ships.
 - The Port Operator invests and installs a large Photovoltaic (PV) System acting as a self-producer isolated from the network.
 - Assuming that his contract allows him, the Port Operator invests and installs a large Photovoltaic (PV) System and participates in the Competitive Electricity Market.
 - The Port Operator acts as a Producer and Electricity Supplier.



New Regulation on Cold Ironing

Regulatory Framework for electricity supply

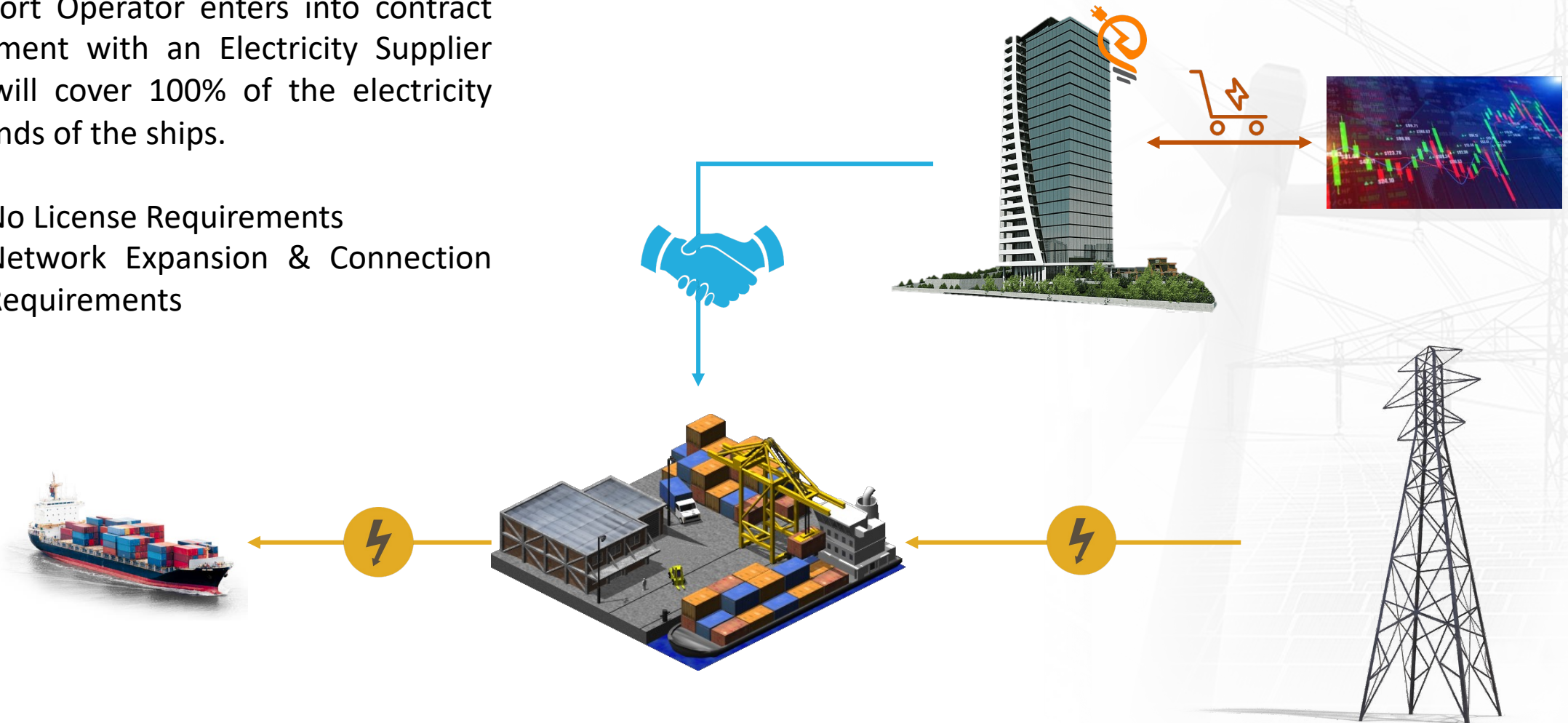
- ❖ Connection to the Network and potential expansion is required.
 - The capacity limit for connection to the Transmission System is set at 15 MW for Users / Producers and 15 MVA for Users / Consumers. (CERA's Regulatory Decision 246/2022)
 - Connection to the Transmission Network (CERA's Regulatory Decision 01/2022)
 - In the case of users who are connected directly to the High Voltage Transmission System, through a private transformer, an accounting calculation of the connection fee is applied by the TSOC.
 - The applicant is charged with the full cost of the necessary expansions of the Transmission System, in order to make the electrification of the connected user's installation possible.
 - The applicant is not charged with the costs of any expansions to the existing network, as long as the part of the network to be expanded does not exclusively serve the applicant's installations.
 - In case where the connection network or a part of it is going to be utilized by future users of the Transmission System or by the DSO, a Refundable Contribution Regime is applied.
 - The duration and other parameters of the Refundable Contribution Regime are determined by CERA following a proposal from the TSOC.

Regulatory Framework for electricity supply

Scenario 1: Contract with an Electricity Supplier

❖ The Port Operator enters into contract agreement with an Electricity Supplier that will cover 100% of the electricity demands of the ships.

- No License Requirements
- Network Expansion & Connection Requirements



Regulatory Framework for electricity supply

Scenario 2: Autonomous RES System

- ❖ The Port Operator invests and installs a large Photovoltaic (PV) System acting as a self-producer isolated from the network
- Application for General License from CERA for the Installation and Operation of a PV Plant.
- Intermittent power generation sources such as solar PV aren't constantly available and predictable, thus can't meet demand at all times.
- Backup solutions (e.g. Battery Energy Storage Systems) should be considered.
- Large Area needed for on-site installation.
- No network Expansion & Connection Requirements.
- Approval by Electromechanical Services may be required.
- Any surplus energy, that can't be stored, will be dumped as the system is isolated.



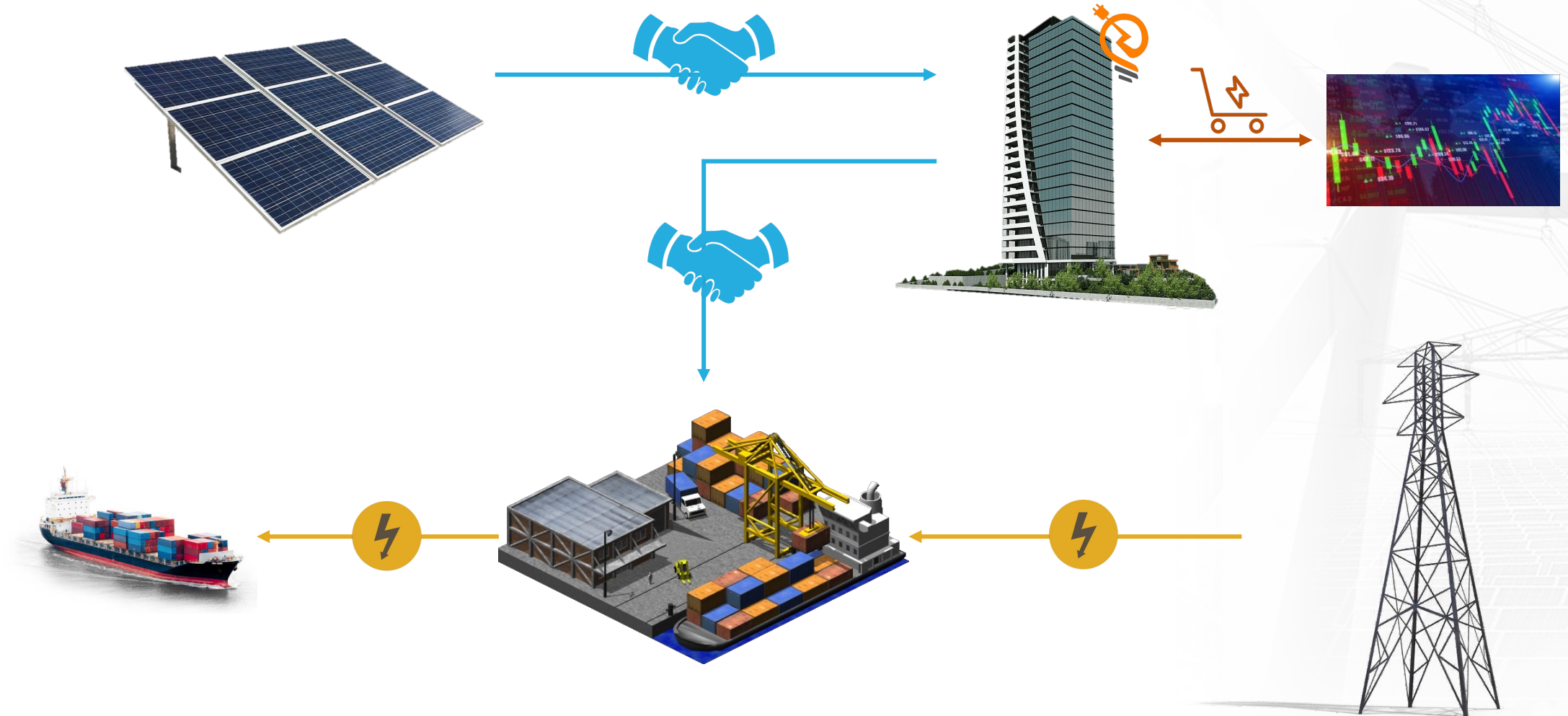
Regulatory Framework for electricity supply

Scenario 3: Enter Competitive Electricity Market

- ❖ Assuming that his contract allows him, the Port Operator invests and installs a large Photovoltaic (PV) System and participates in the Competitive Electricity Market.
 - Application for a Producer and a Supplier (different companies) license from CERA.
 - PV System can be installed in any location, given approval by the TSO.
 - The Producer license holder enters into a Power Purchase Agreement (PPA) with the Supplier license holder for selling the generated electricity.
 - The Supplier Company enters into a supply contract agreement with the Port Operator for covering the load requirements of the port.
 - Electricity Supply Rules issued by CERA must be obliged.
 - Any excess of the generated electricity can be sold to the electricity market.
 - Electricity Market Rules issued by the Market Operator must be obliged.
 - Network Expansion & Connection Requirements.

Regulatory Framework for electricity supply

Scenario 3: Enter Competitive Electricity Market





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