Curtailment Procedure for Photovoltaic (PV) Generation – Information for Consumers & Producers

The Distribution System Operator (DSO) applies curtailment procedures (i.e., limitation of energy output) for electricity generation from Renewable Energy Sources (RES) when required for technical reasons, in order to maintain the stability and security of the electricity network.
These procedures are activated only in exceptional cases, such as when electricity consumption is significantly lower than RES production.

Below is a simplified explanation of the process followed for RES generation curtailment.

Explanation of Key Terms

- **Group 1:** Large-scale PV parks (over 400 kW) that have received connection terms after 4 July 2019 and are controlled via the Distribution SCADA system. These units do not have priority dispatch and are the first to be curtailed. *
- **Group 2:** Smaller or older PV systems (below 400 kW or with connection terms before 4 July 2019) which are controlled via the Distribution SCADA system.
  These units have priority dispatch rights and are curtailed only if strictly necessary. *
- **Zero Export Systems:** PV systems installed primarily for self-consumption, designed to avoid exporting excess electricity to the grid. They are categorized into:
  - **Non-Permanent Zero Export:** The zero export mode is enabled upon receiving a remote command.
  - **Permanent Zero Export:** The system is configured always to inject zero power into the grid.

- **Article 102 Group:** PV systems under transitional period, according to national legislation*, which have not yet installed the required SCADA remote-control system.
- **NB-IoT & Ripple Control:** Technologies used by the DSO to remotely disconnect small-scale PV systems from the grid when necessary.
- **Disconnection (Shedding):** The temporary disconnection of PV systems from the network.
- **Curtailment:** The gradual reduction of PV output without disconnecting the system from the grid.

* These classifications are defined by Article 102(2) of Law 130(I)/2021, CERA Decision No. 181/2024, and EU Regulation (EU) 2019/943.

How Is Curtailment Implemented?

Curtailment of PV generation is applied in successive stages, based on the priority level of each group**:**

Stage 1 – Group 1

- Curtailment is applied first to large commercial PV systems which don't belong to Group 2.
- Non-Permanent Zero Export systems in Group 1 are switched to zero export mode (self-consumption only).

Stage 2 – Group 2

- If curtailment of Group 1 is insufficient, then priority systems (Group 2) are also curtailed.
- Non-Permanent Zero Export systems in Group 2 are set to zero export mode.
- PV systems under the Article 102 Group are disconnected from the grid.

Stage 3 – NB-IoT & Ripple Control

- If further curtailment is still required, small-scale PV systems are disconnected on a rotational basis using NB-IoT and Ripple technologies.

Stage 4 – Zero Export Systems

- In emergency conditions, and only if all the above measures are exhausted, all Zero Export systems (both permanent and non-permanent) are instructed to cease all energy production.

How Is Normal Operation Restored?

Restoration to normal operation follows the reverse order of the curtailment stages:

1. Zero Export systems are the first to resume self-consumption operation.
2. NB-IoT and Ripple-connected systems are gradually reconnected.
3. Group 2 systems follow, including:
    - Re-enabling export capability of Non-Permanent Zero Export systems.
    - Reconnection of Article 102 systems.
4. Lastly, Group 1 systems are restored.
   Once all systems are fully reinstated, Non-Permanent Zero Export systems in Group 1 are allowed to export excess energy to the grid again.

Important Note

This curtailment and disconnection procedure is applied only when strictly necessary, and always with the aim of protecting the stability and integrity of the electricity system.

The final coordination and decision for curtailment actions lies with the Independent Transmission System Operator of Cyprus (TSOC), who assesses real-time conditions on the grid (e.g., weather, line loading, demand forecasts).
The order of curtailment stages may be modified dynamically based on these actual conditions.