Northern cyprus energy storage regulations

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The Cyprus Recovery and Resilience Plan will lead to the establishment of a regulatory framework for promoting the participation of storage facilities in the electricity market.

This reform will facilitate the promotion of electricity generation from renewables, which is key for the efficiency and viability of the electric system of the country.

The reform will amend the Transmission and Distribution Rules (TDRs) and the Trading and Settlement Rules (TSRs) to allow storage facilities to participate in the wholesale electricity market.

The amended (and approved by CERA) TDRs (5.3.0) entered into force with the publication of the relevant CERA"s Announcement in the Official Gazette of the Republic on 8 April 2022.

The amended (and approved by CERA) TSRs (2.2.0) entered into force with the publication of TSOCs Announcement in the Official Gazette of the Republic on April 8, 2022.

In light of the above, the Cyprus Government has launched a number of financial measures in the form of governmental grants and/or subsidies. These financial measures are realized as RES Grant Schemes prepared by the Ministry of Energy, Commerce, Industry and Tourism which aims to provide, among others, support and incentives for the promotion of RES-E utilization in Cyprus. The main types of RES technologies which are promoted under these measures for integration in the Cyprus power system are the following:

The solar energy industry is divided into mainly two markets, the photovoltaic (PV) market and the concentrated solar power (CSP) market. The CSP technology uses the heat radiated from the sun, for purposes such as heating water or power generation. On the other hand PV solar cells use the properties of particular semiconducting materials to convert sunlight energy to electricity. The PV industry is far larger than the CSP market.

PV systems are made up of a variety of components, which aside from the modules, may include conductors, fuses, batteries, inverters, etc. Components will vary, however, depending on the application. PV systems are modular by nature, meaning that systems can be expanded and components easily repaired or replaced if needed. PV systems are cost effective for many remote power applications, as well as for small stand-alone power applications in proximity to the existing electricity grid. There are two main PV technologies:

The technology used to make most of the crystalline silicon solar cells, fabricated so far, borrows heavily from the microelectronics industry and is known as silicon wafer technology. The silicon source material is extracted from quartz, although sand would also be a suitable material. The silicon is then refined to very high

purity and melted. From the melt, a large cylindrical single crystal is drawn. The crystal, or "ingot", is then sliced into circular wafers, less than 0.5mm thick, like slicing bread from a loaf.

The monocrystalline silicon cell is made using cells saw-cut from a single cylindrical crystal of silicon. The main advantage of the monocrystalline silicon cells is the high efficiency which is around 15%. The multicrystalline silicon cell is made by sawing a cast block of silicon first into bars and then into wafers. Multicrystalline cells are cheaper to manufacture than monocrystalline ones due to the simpler manufacturing process. However they are slightly less efficient than the monocrystalline with average efficiency of approximately 12%.

Thin-film panels have several important drawbacks. What they gain in cost savings and flexibility they lose in efficiency resulting in the lowest efficiency of any current PV technology at approximately 6-7%. The main interest in these technologies rises from the fact that they can be manufactured by relatively inexpensive industrial processes, in comparison to crystalline silicon technologies yet they offer typically higher module efficiency than amorphous silicon.

The primary article of commerce in the PV market is the PV module. PV modules are integrated into systems designed for specific applications. The components added to the module constitute the "balance of system" or BOS. Balance of system components can be classified into four categories: