

Closure of
“Operation of the Electrical System of Crete in Interconnection with the Mainland Grid:
A Stability Study”

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As clearly defined in the paper its purpose is to investigate the dynamic behavior of the system of Crete in case of interconnected operation with the Greek mainland system; the transient behavior of the system of Crete under severe contingencies is analyzed.

The discussion gives useful information on the history of the first attempt to interconnect the system of Crete to the mainland Greece (which is also briefly mentioned in the introduction of the paper). The main topic of the discussion refers to the cable routing and the investigated track during the eighties which is much shorter than the one assumed in the paper. Although the dynamic behavior of the system of Crete is not affected by the cable routing and length it should be noted that the assumed new cable routing i.e. from the center of the island to the Metropolitan area of Athens instead of Peloponnese is not a final decision but the most likely option. This configuration has been dictated by the following reason:

The peninsula of Peloponnese is usually an exporting area connected to the mainland through 150 kV lines of limited transfer capacity. This area is usually exporting to the metropolitan area of Athens, since it has significant thermal and RES generation capacity.

Due to the high wind and solar potential, a large number of Firm Connection Terms for RES plants has been issued by the Greek TSO and DSO (total capacity of about 2 GW). Also, a new combined cycle thermal unit of a capacity of approximately 800 MW is under construction (expected commissioning date 2014 – 2015) in the center of Peloponnese. Under the current system topology Peloponnese is a congested area and new generation capacity cannot be connected. In order to accommodate these plants and evacuate their production, two new 400 kV connections to the mainland have been planned by the TSO; these lines will also increase the system security in Peloponnese.

Static security analysis show that after the construction of the new 400 kV lines the planned new generation (both thermal and RES) could be hardly accommodated. In

addition, Crete has a vast RES potential (roughly 180 MW of WFs and 100 MW of PVs currently installed) and about 3 GW of RES have been licensed by the Regulator. Under this regime, it is obvious that Crete will be also exporting in the long run and therefore the connection of Crete to Peloponnese would cause further congestions even if the new lines are constructed. In any case these lines are a prerequisite for the connection of Crete. The construction of the new 400 kV lines faces significant difficulties in licensing, but also strong public opposition in specific sites. Under these circumstances, the connection of Crete to the Athens area seems to be the most likely option.