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FCC electrical grid and infrastructure: update

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Starting from the status presented at the FCC Week of 2023, the network concept has now progressed and been updated on the latest users' requirements and the latest outcomes of the studies.

Some axis of optimization have been explored and analysed to find the optimum result for the high voltage transmission level and the location of the main substations; the operational scenarios and degraded modes for the electrical grid have been defined to allow in most of the circumstances the continuity of FCC operations; it has been developed the concept of the secured network that will supply all the safety-related systems in surface and overall underground and in the tunnel.

Furthermore, it has been defined how to re-use one of the 400 kV connections to RTE grid already available at CERN to supply in future the new facility, and the feasibility study for the installation of a high voltage line in the tunnel is coming to a positive end.

Finally, the updated setup of the network has been tested with the latest load forecast for FCC-hh, to update the projection of the use of the main infrastructure for the future machine.

The aim of this presentation is to provide the update of the studies on the electrical grid of FCC, focusing on the main items mentioned here above.

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