

# Paris Session 2022



125 Mvar STATCOM systems for oscillation damping and supporting HVDC-LCC reactive power unbalance

**B4 DC SYSTEMS AND POWER ELECTRONICS**  
**PS3 – FACTS and Power Electronics (PE)**

*Question 3.1: What are the criteria to decide between STATCOM and SVC in your network/country? Do STATCOMs and SVCs have a comparable performance regarding RAM in your network? Do they require the same or similar O&M practices?*

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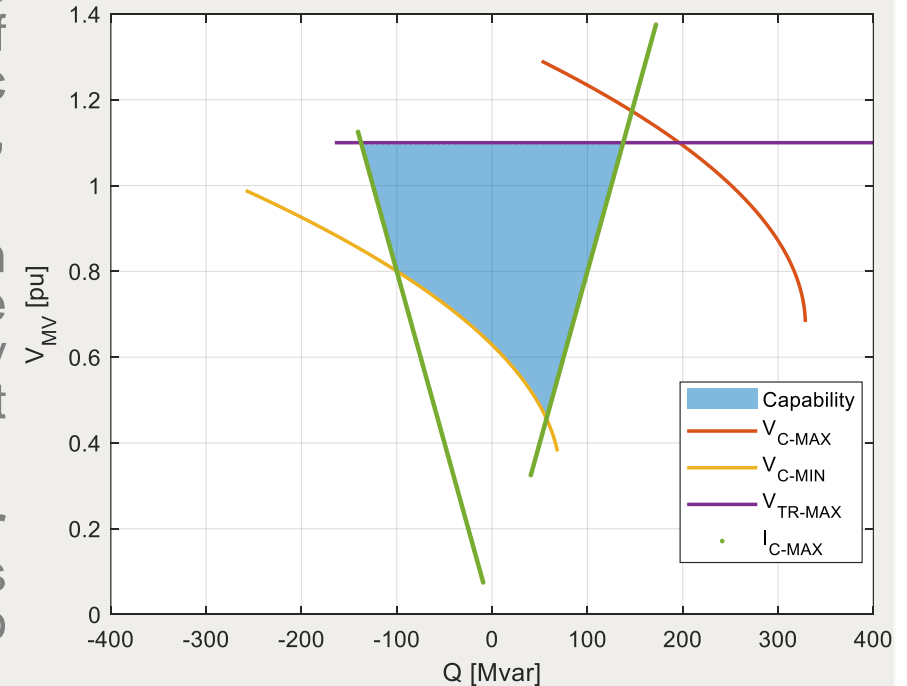
## Question 3.1

What are the criteria to decide between STATCOM and SVC in your network/country?

Although **SVCs** guarantee high dynamic performances, its maximum reactive power supplied/absorbed is a function of square voltage at the connection point. In addition, **harmonic filters** are needed if 12-pulses SVC solution is considered, increasing the required **footprint** in substation.

Whitin the normal voltage range of operation, STATCOM can deliver its rated current in over and under-excitation. The STATCOM maximum current constraint leads to a linear boundary in the QV plane. This means that the maximum STATCOM output varies linearly with the voltage at its MV terminals.

Converter valves technologies, based on the well-known **Modular Multilevel Converter** (MMC) with full bridge topology, allows harmonic emission below the Grid Code constrains (i.e. no harmonic filters).



## Question 3.1

Do STATCOMs and SVCs have a comparable performance regarding RAM in your network? Do they require the same or similar O&M practices?

Italian transmission system has not SVCs technology in service.

During the design process, STATCOM suppliers have to perform a RAM study. According to Terna technical specification, the expected availability has to be equal or higher than 98,8%.

O&M practices and spare parts are, therefore, define by each supplier in order to guarantee high availability.