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QUESTION N° : Q2.9

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Q2.9 : What new or additional tools will power system operators need in order to be able to foresee, prepare and react to extreme operating conditions?

**Tool 1. Resonance Monitoring System** (SSR, SSTI, SSCI, Gen & HVDC & TCSC interaction) On March 4, 2022. Transmission lines (765kV, 345kV) fault occurred due to wildfires in the East coast of Korea. N-6. At this time, It is possible to suspect the possibility of SSR occurring between the generator and the TCSC. SSR relays pick up in Samcheok Generator(1.2s) during trips. In addition, HVDC (link East coast with Seoul) will be built in 2025~2026. Therefore, The possibility of interaction between Gen-TCSC and HVDC should be considered.

- 1) Online-SSR analysis Tools DSA(SSAT module)
- 2) Real-time PMU monitoring system

**Tool 2. Acceptable renewable Gens Trip Capacity Monitoring System**

In Jeju Island, PVs(without LVRT) are 350MW in 619MW PV total. 4~7 must-run conventional Gens are needed to prepare PVs(without LVRT) Trip. Owing to the increase in renewable penetration, the Jeju interconnection has reached its limit, leading to more frequent curtailment of the renewables. The following methods are needed for Jeju Island Power system and Mainland.

- 1)Through real-time Acceptable Ren. Gen Trip Capacity monitoring, And flexible start and stop of the must-run conventional generator will be performed.
- 2)The inverter(LVRT) will be improved in the mainland system area where PVs are concentrated.

