

Paris Session 2022



Reactive Power Management and Other Challenges with High Renewable Penetration: Case study of Indian grid

C2 – System Operation and Control

Question 1.2 The training of a control room operator is essential to enable them to be exposed to situations that rarely occur in real-life. However, in these extra-ordinary events the psychological pressure can affect the decision process of an operator, how can these conditions be replicated on a simulator?

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Training for System Operator

- Control room operator works in a real time environment, where experience, knowledge & situational awareness is the key.
- Operator has to keep him/herself ready for any sorts of system contingencies while keeping grid parameters within safe limits.
- Contingencies can be simulated in simulation, However the situational & psychological pressure one faces within for early restoration of supply can't be simply replicated in a simulated environment.
- To ensure that the simulators provide experiences closer to real time situations, following are proposed:
 - During simulated contingency, operator may be made to take multiple telephonic calls from dummy stakeholders.
 - During simulated grid disturbance operators may be made to study signature analysis & quickly come to conclusion on whether to charge the elements or not.
 - Time-bound simulation of disturbances and restoration process in DTS (Dispatcher Training Simulator) may be considered for capturing the psychological impact.

Training for System Operator

- Following inputs may be considered for analysis by artificial intelligence based tools. These inputs may train the model and provide suitable results given any new rare situation.
 - Past performance under different grid contingencies,
 - Number of training attended
 - Number of mock exercise participation
 - Experience in control room
 - Certificate & degree
 - Physical fitness
 - Medical history
 - Behavioral interaction with colleagues
 - Social interactions
 - Psychological parameters/assessment as recommended by expert psychologist
 - Marital status
 - Family-oriented/ responsible
 - Networking etc.

Group Discussion Meeting