«Question»

Discuss the rationale, advantages and potential challenges in adopting a private 5G network for a power utility.

«Answer»

The one of challenges in adopting a private 5G network is effects of electromagnetic noise during 5G use in power facilities such as substations and thermal power stations.

When electric power utilities build a private 5G network, they need to check the following:.

① Do radio waves from private 5G communication systems affect the normal operation of various power systems?

② Do radio waves from terminals using private 5G communication systems affect the normal operation of various power systems?

③ Does noise from various power systems affect the normal operation of private 5G communication syetem?

Fig.1 shows the effects on power facilities, 5G communication systems, and 5G terminals.

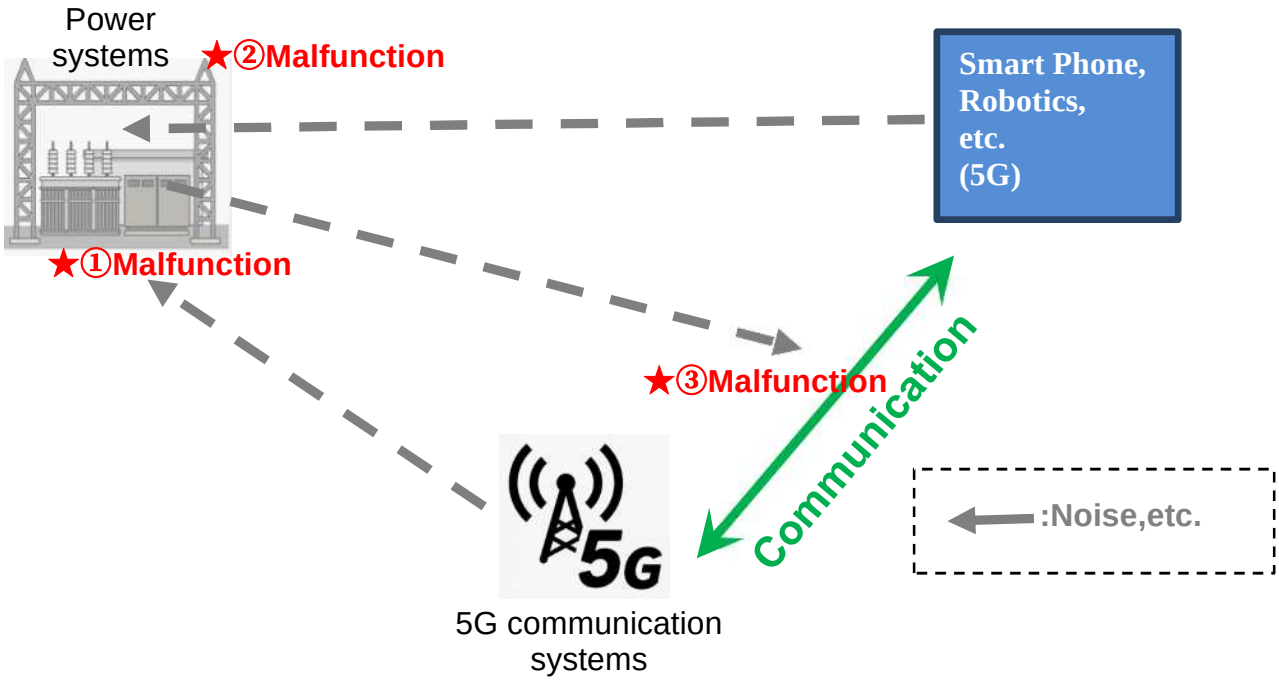

Fig.1 The effects on power facilities, 5G communication systems, and 5G terminals.

Electric power utilities have fully confirmed these three things when using wireless communication systems such as private LTE and WiFi to control and monitor power equipment.

When they will use private 5G networks, it will be necessary to verify the use of SUB6 and millimeter-wave in power facilities.

I think this is one of the challenges when power companies use private 5G networks.

This issue is also discussed in the CIGRE 2022 Kyoto Tutorial :SC-C3: Application of robotics in substations.