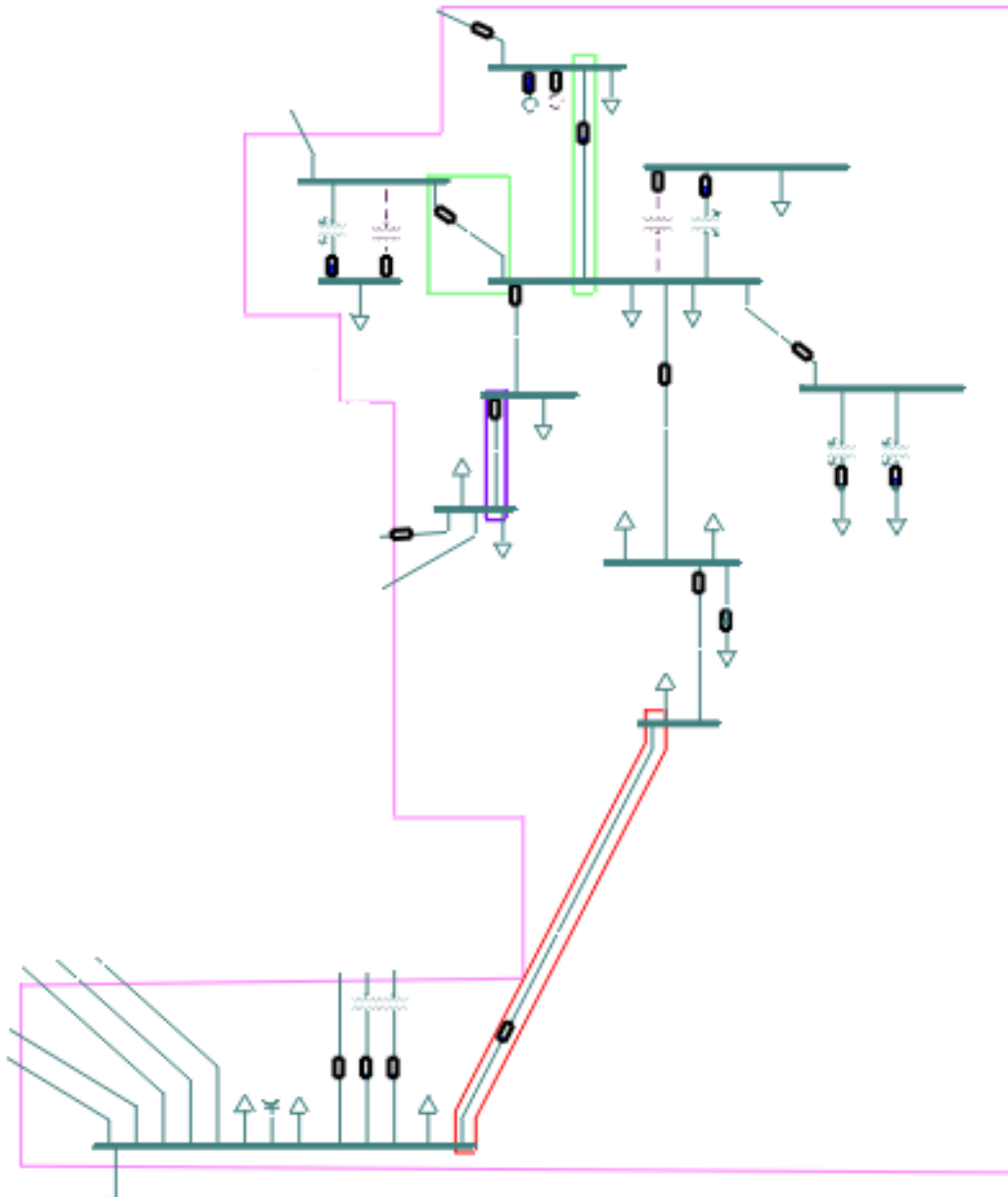
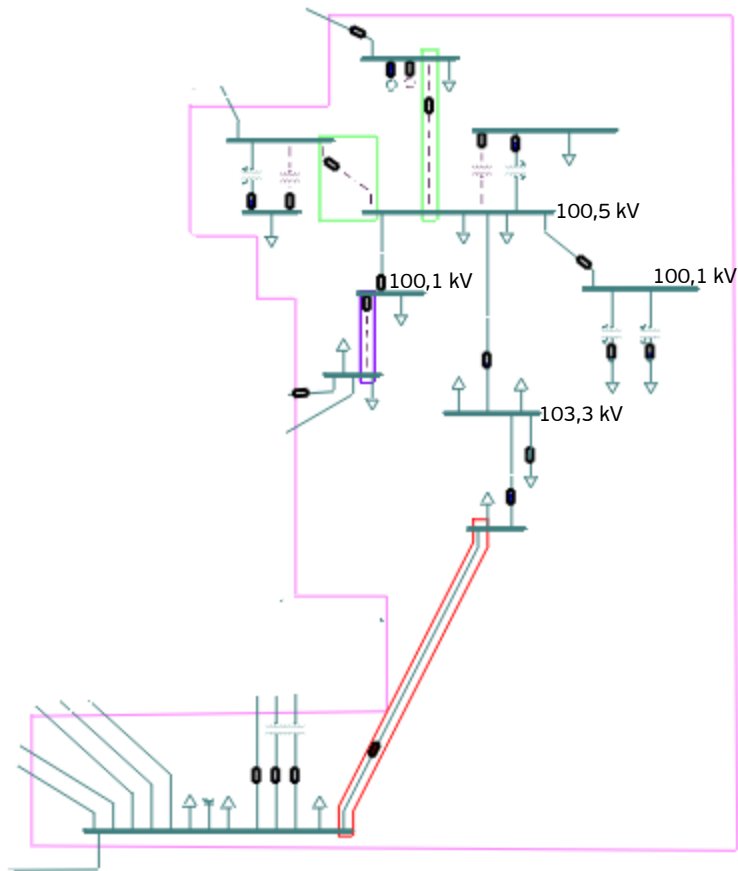


## DEMO LOCATION 1

The following figure shows a part of the transmission grid. Dashed lines represent out of service branches.

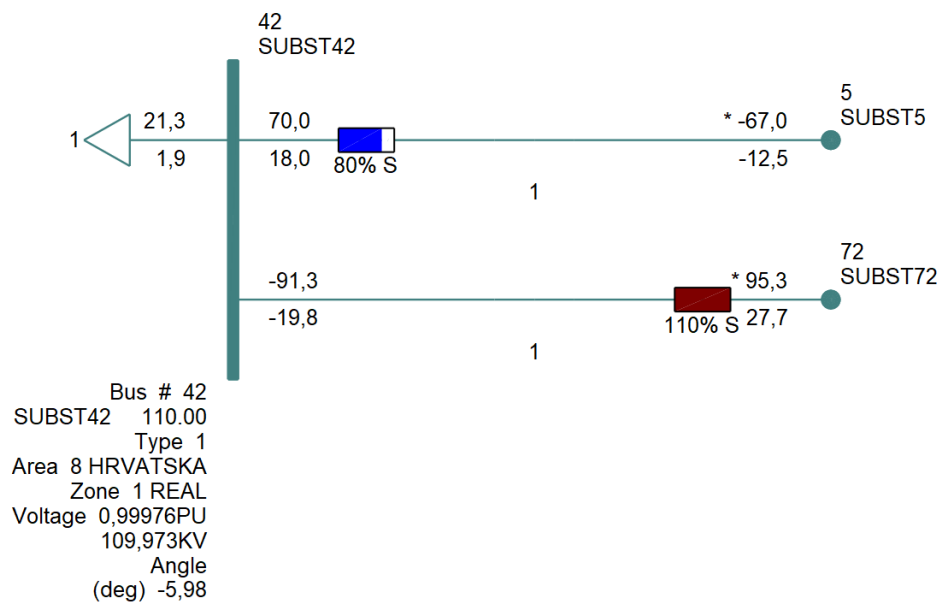


Let's assume HV line SUBST1-SUBST29 is disconnected due to maintenance and HV line SUBST1-SUBST36 tripped due to failure (green solid area). Tripping of the transmission line SUBST26-SUBST55 (purple solid area) leads to congestion on HV line between buses SUBST42-SUBST72.



The following figure shows congestion on HV line between buses SUBST42-SUBST72:

- in case of tripping of a line SUBST26-SUBST55, overload is 110%,



In this case HOPS did not have available sources on transmission grid to mitigate congestion.

In addition to congestion problems, there were also problems with voltages in the observed part of the network at a given moment. The reason is that the entire observed part of the network is supplied radially, which causes large voltage drops at the edge nodes of the radially supplied network.

In case of large voltage drops caused by already mentioned congestion on HV line between buses SUBST42-SUBST72, HOPS does not use corrective measures.

We suggest to take in consideration TSO-DSO coordination mechanisms to resolve mentioned congestion and voltages problems.