



Electrical Network Evolution

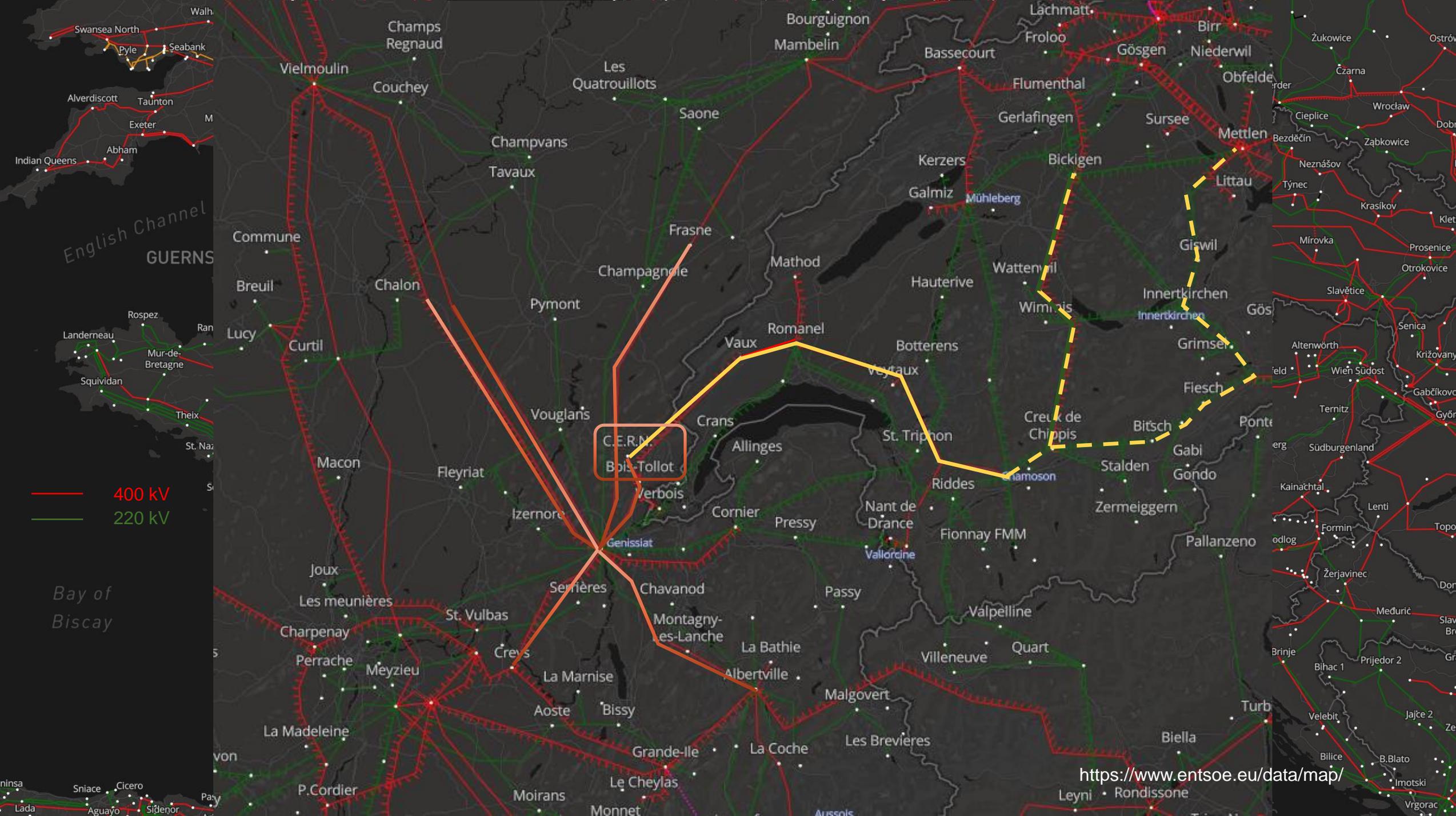
DNV Visit

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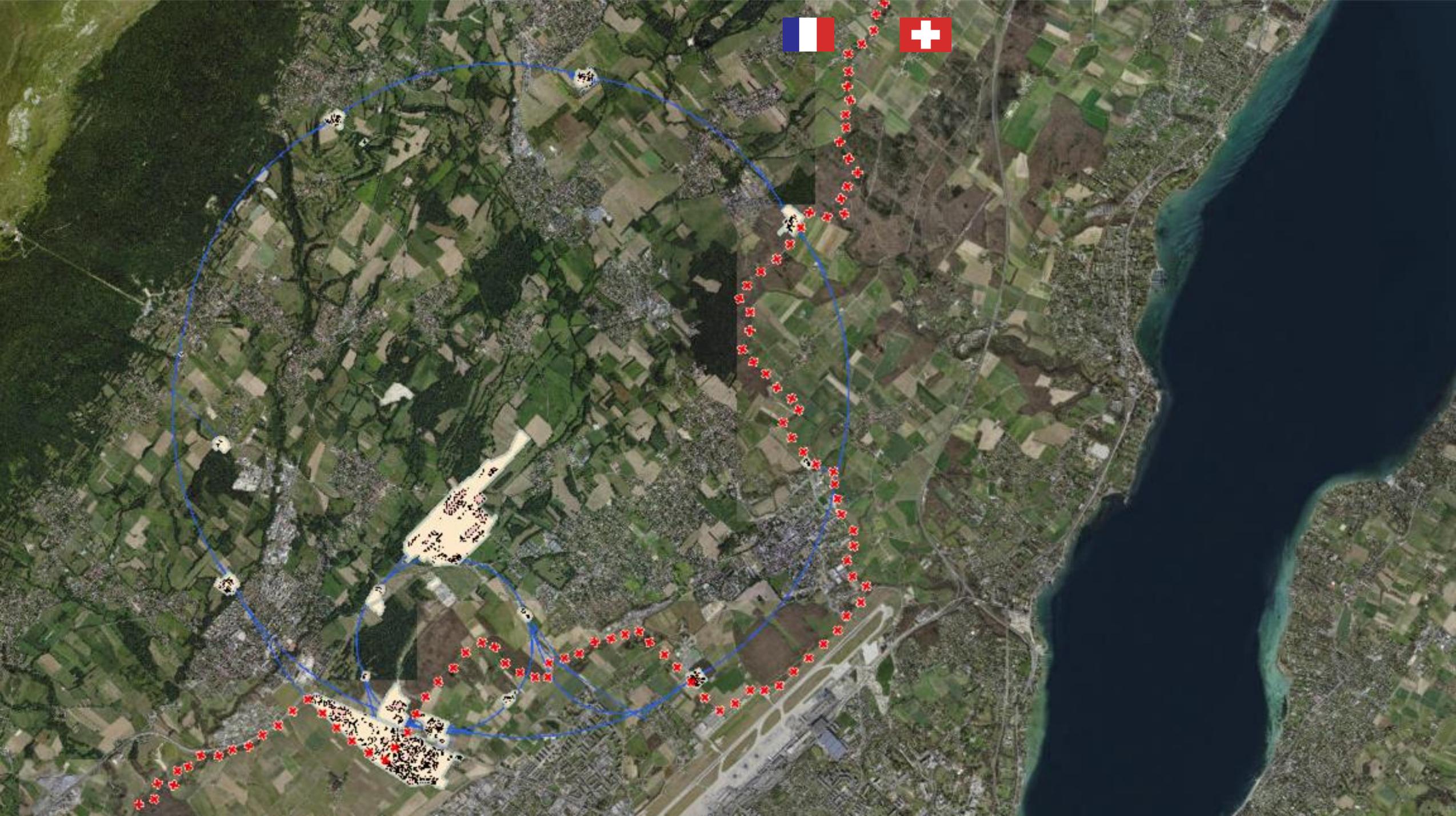
Content

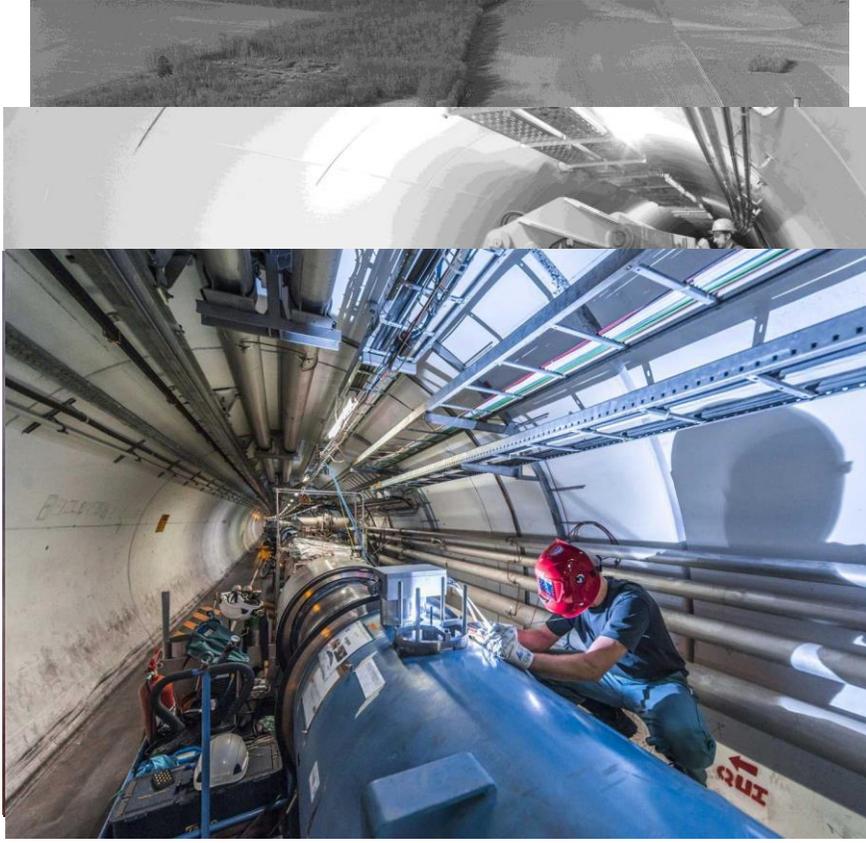
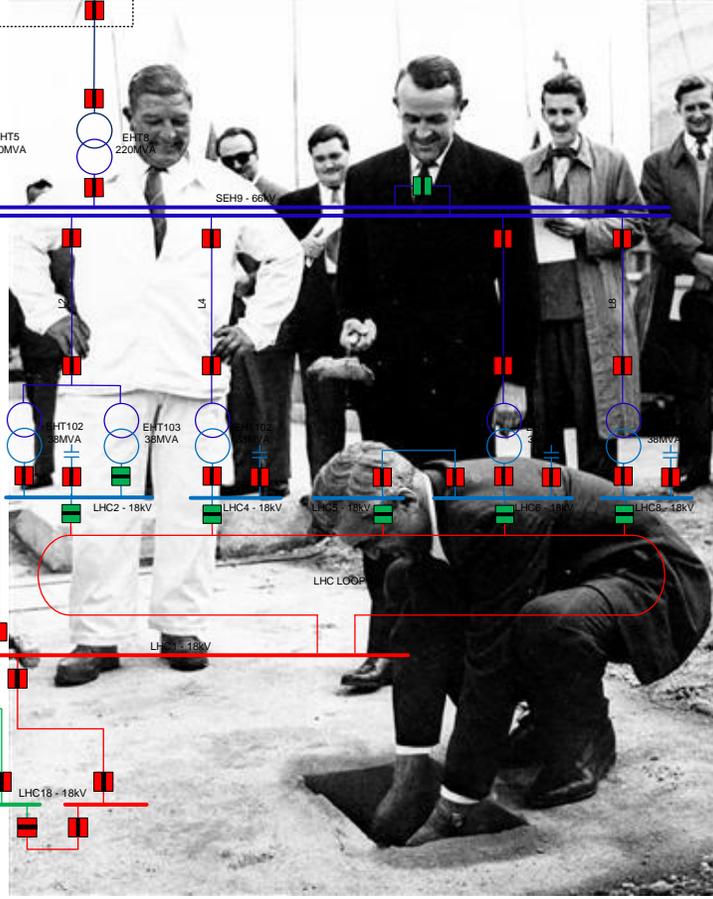
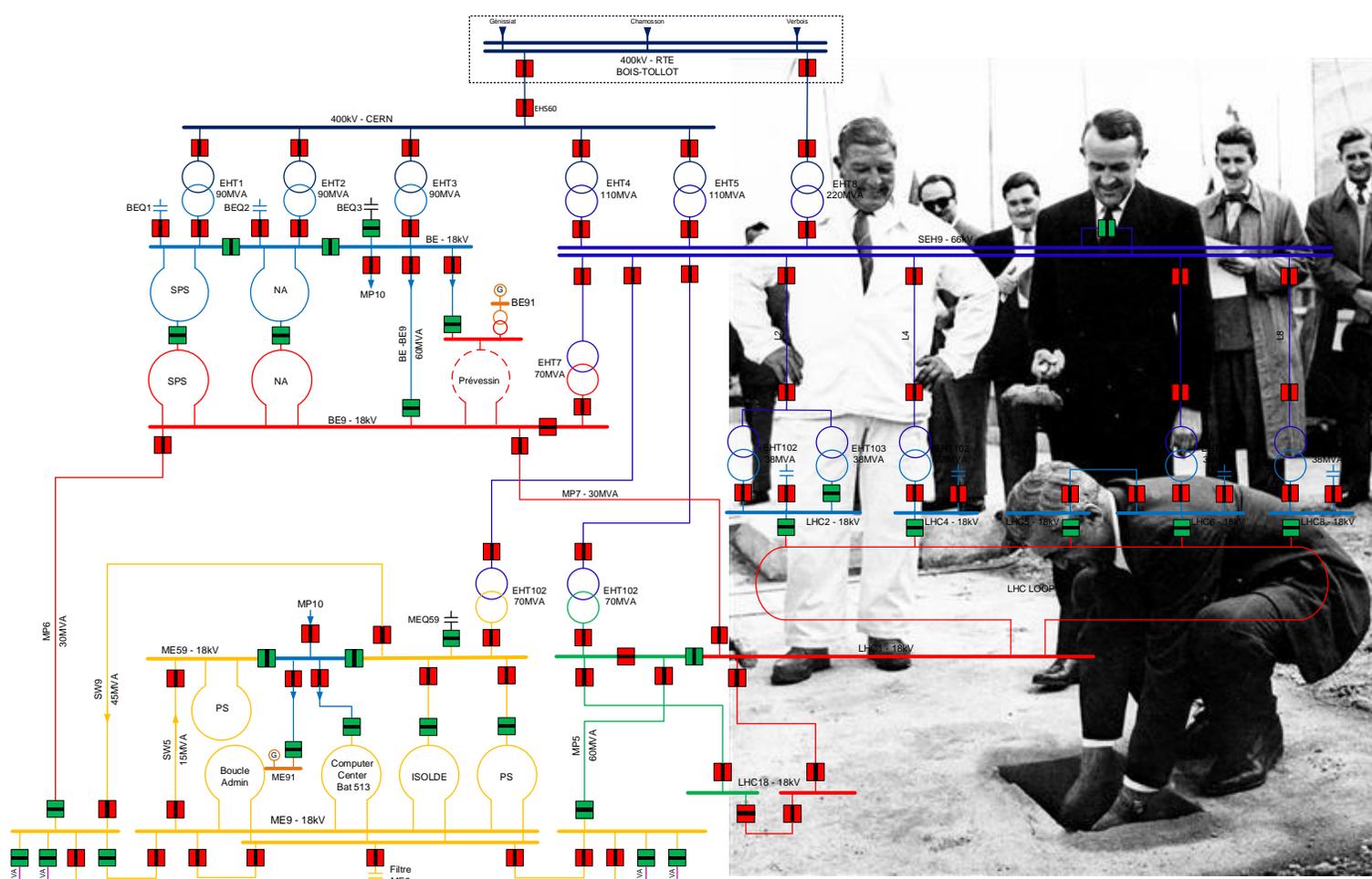
- **Electrical grid in CERN region**
- **Overview of CERN electrical network**
- **Network evolution up to LS2**
- **Roadmap for the future**
- **Conclusions**

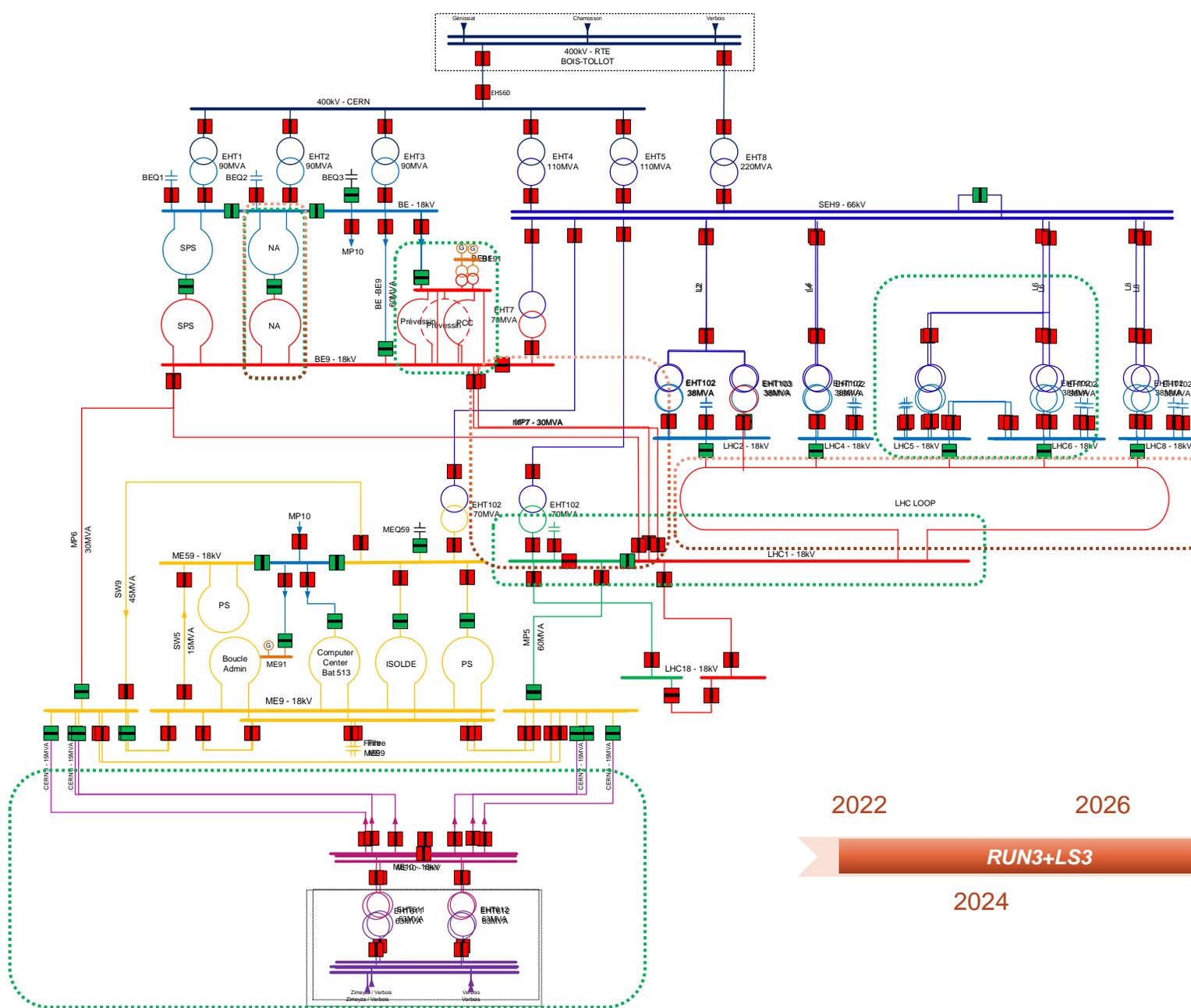


— 400 kV
— 220 kV

<https://www.entsoe.eu/data/map/>







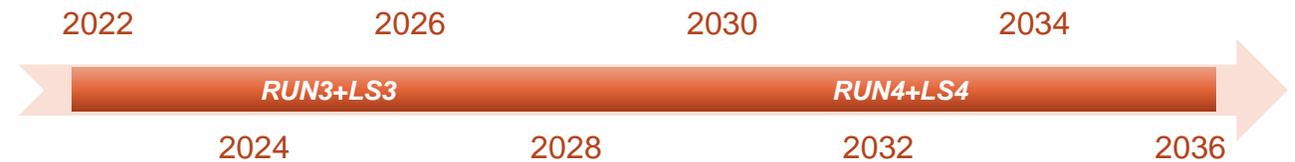
Roadmap for the future evolution

By the end of LS3:

- LHC5-LHC6 66 kV upgrade
- LHC5 18 kV upgrade
- LHC1 18 kV upgrade
- ME10 consolidation
- Preveessin and PC supply
- North Area consolidation Phase 1

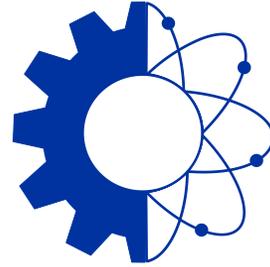
Future évolutions (under discussion)

- North Area consolidation Phase 2
- Upgrade of MP7 link
- Separation of SPS and LHC networks



Conclusions

- The CERN electrical infrastructure is a multi-layer network covering all sites of the complex.
- The network has followed the evolution of the Organization.
- Strong interface with the surrounding regional grids and their status.
- Important results have been achieved until LS2, but the evolution will continue.
- The Roadmap for the evolution of the network is set until LS3 and beyond, with interesting options >2028 already under assessment.
- The evolution shall face future challenges for what concerns the energy market evolution, the flexibility required from the external grids, the electrical automotive development, and shall consider new technologies arising.
- The higher the power demand, the more complex the upgrade: significant power requirements shall be announced in due time.



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