



Physical Security in APG and ENTSO-E

(ENTSO-E = European Network of Transmission System Operators for Electricity)

Expert Workshop on
“Sharing Best Practices to Protect Electricity Networks from Natural Disasters”
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Overview

- **APG's view on physical security**
- Main challenges
- ENTSO-E's view on physical security

Security zones in APG

-  Zone **green**, internal, access after plausibility check
-  Zone **yellow**, internal restrictive, access only for registered persons, visitors accompanied bei APG employees
-  Zone **red**, access only for a few authorized persons, each access is registered

In case of imminence we enlarge the zones
(escalation system)

Main control center of APG



The Safety and Security Center (SSC)



- **located in main control centre**
- **single person duty 24h/7days a week**

Exercises with Army forces and Police



Research projects with partners (examples)



- **Extreme weather situations (“REXTEX”)**

Identifies the most serious meteorological risk factors for the Austrian electric powergrid, assuming the weather-exposed components to be the vulnerable points. Protection and adaptation measures will be derived.

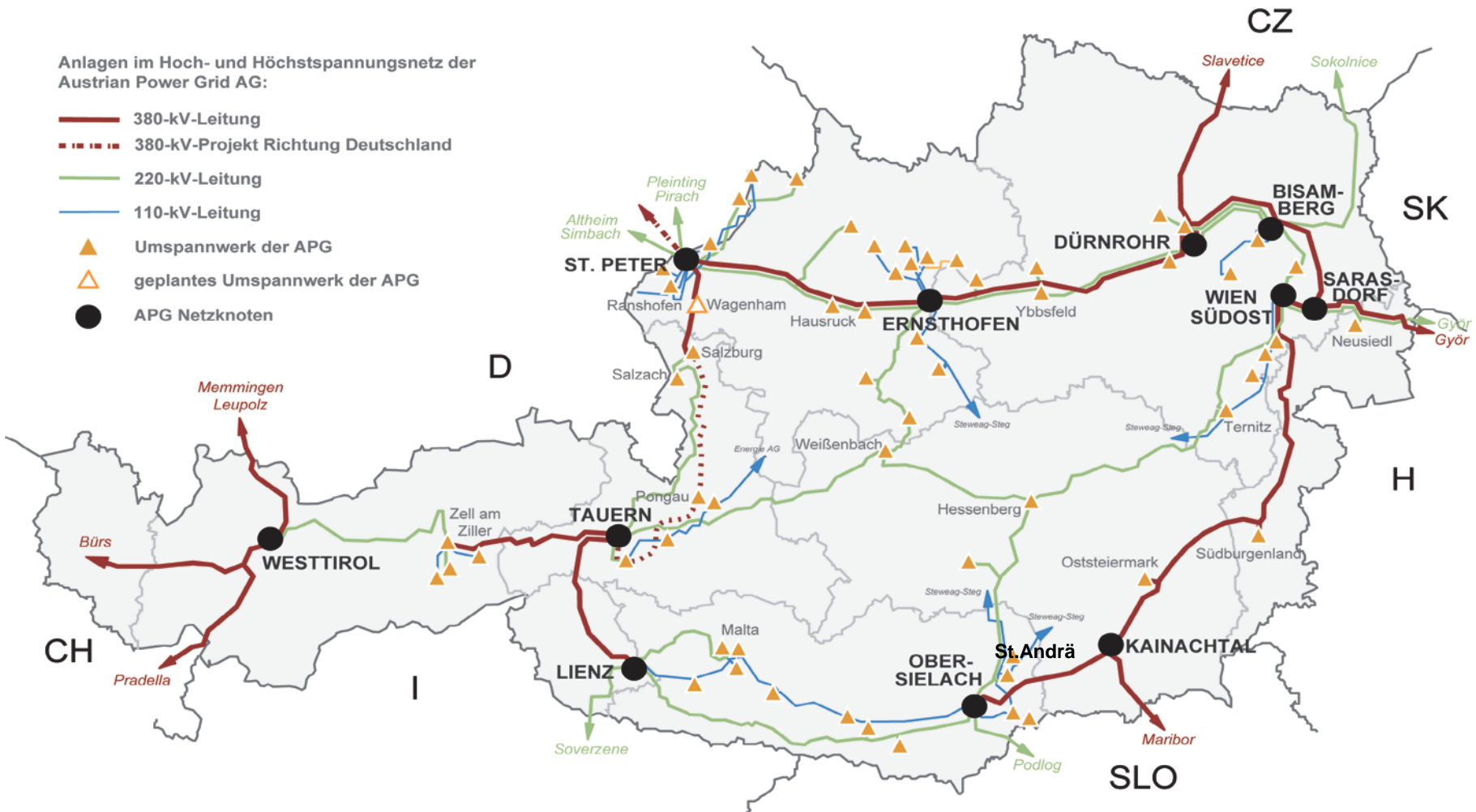
- **GICs (geomagnetically induced currents)**

Research on influences of GICs on the electricity infrastructure.

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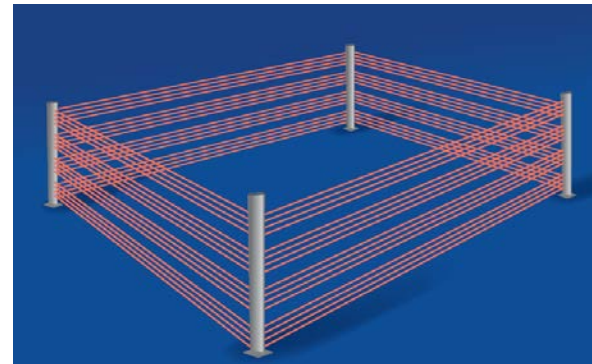
Main challenges: Intrusions/raids



Intrusions/raids

- thefts (copper, equipment)
 - prepared thefts (cut fence, prepared material for transportation)
 - vandalism acts (criminal damage, margins)
- + 1 bomb incident (1995)

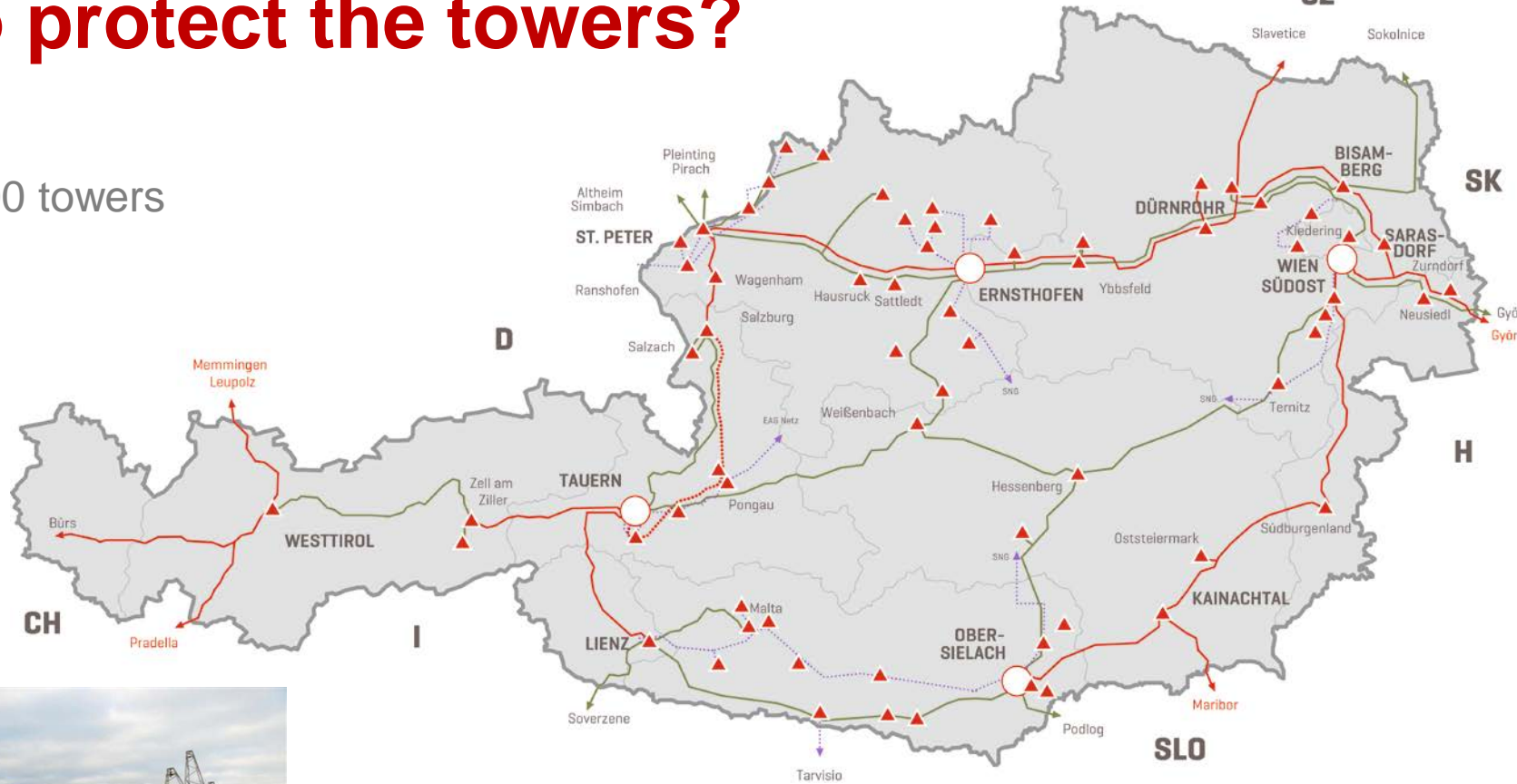
Pilot project: Storage space monitoring with IR fence



Challenge: How to protect the towers?



APG > 12.000 towers



High water 2005 in Tirol/Vorarlberg

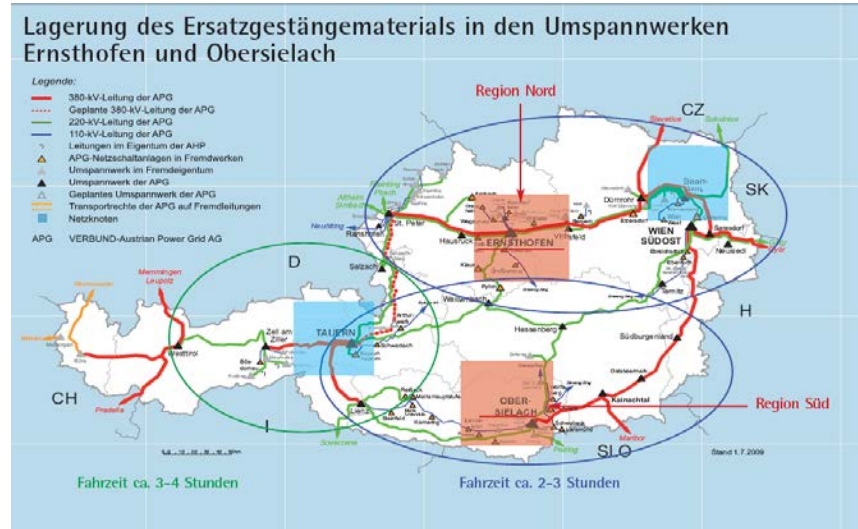
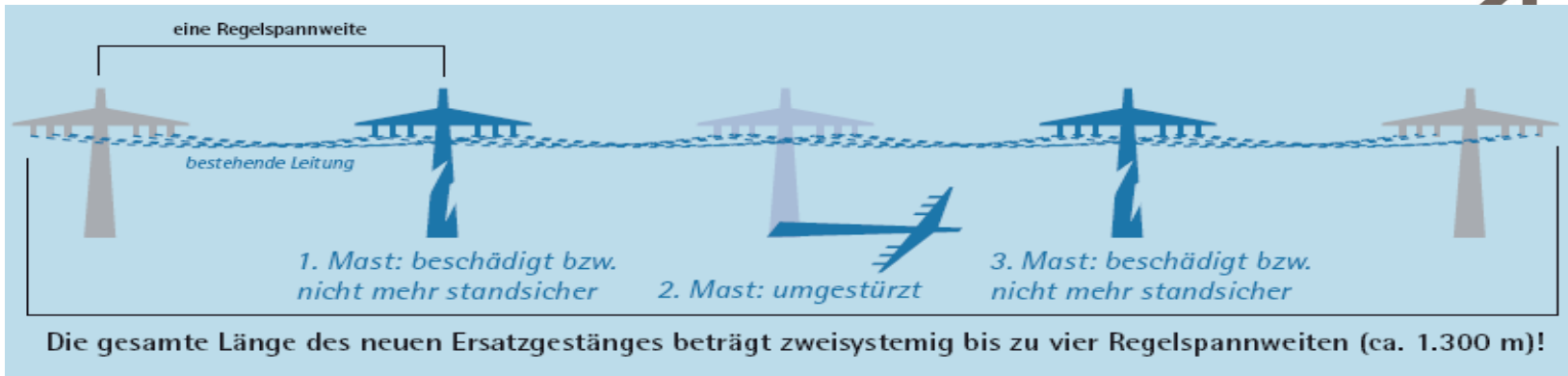


Line 421/422 Westtirol-Bürs

Incident 2008 Sturm „Emma“

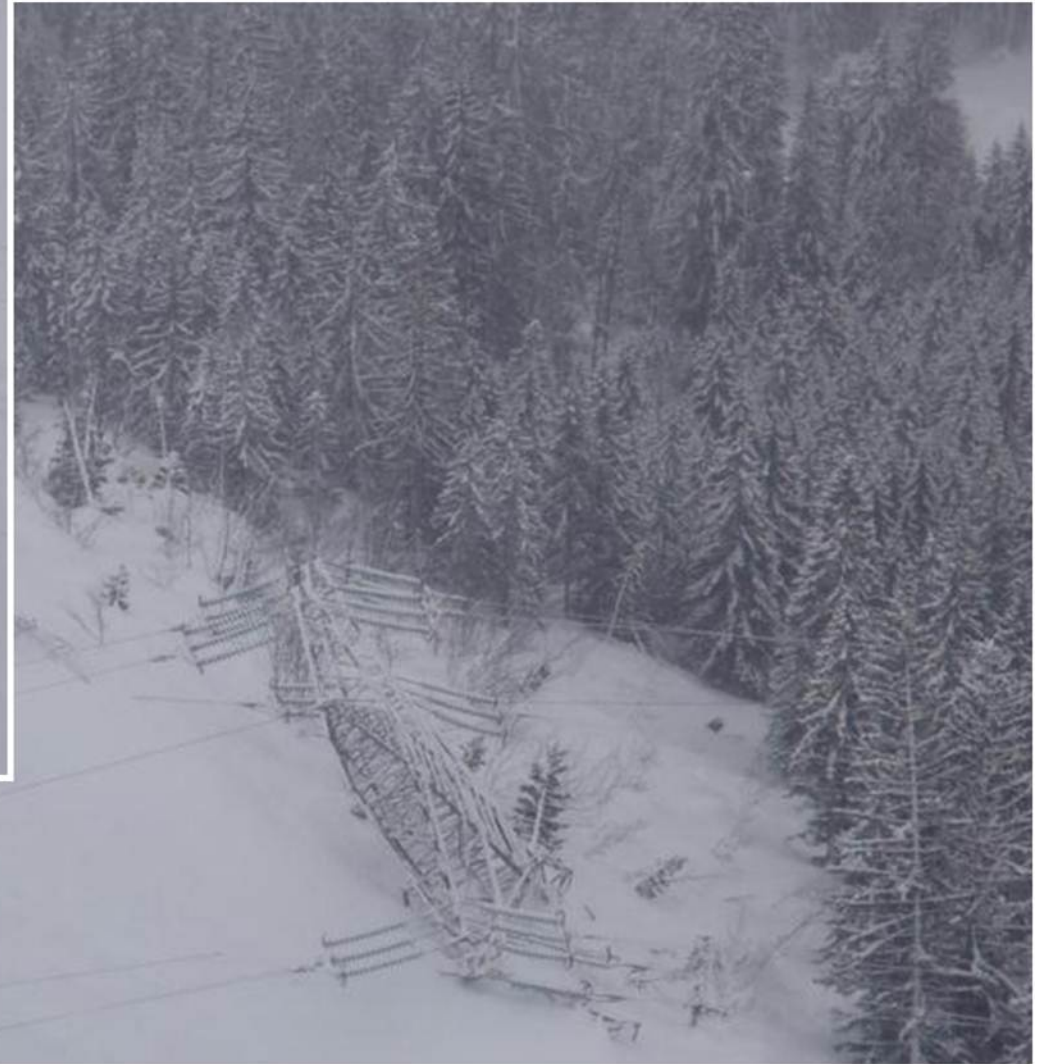


Emergency spare parts for towers – the „Security Package“



The emergency use of the security package is regularly trained through exercises.

Double tripping of 220-kV-line Tauern – Salzburg on 15.2.2012 caused by a „dust avalanche“



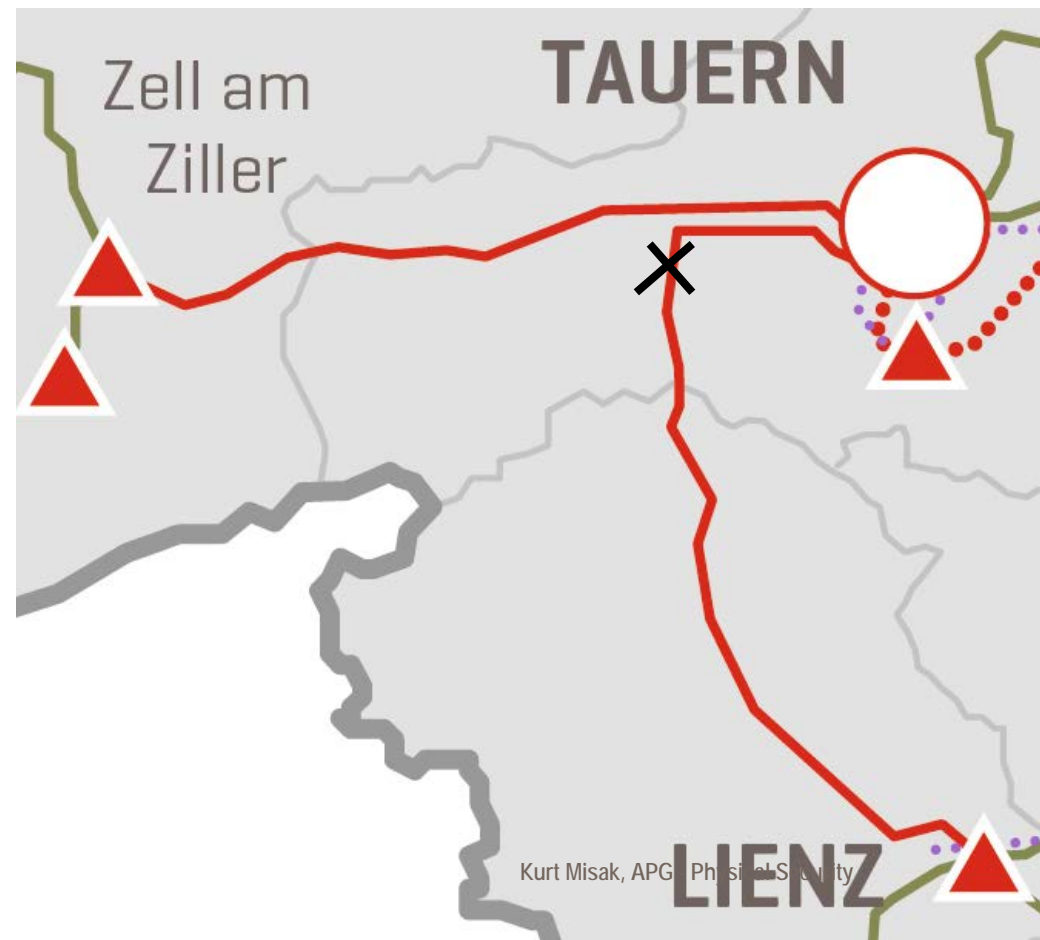
High water in substation Salzach



Damage to line 451/452 by a landslide

02.06.2013 – 02:50:

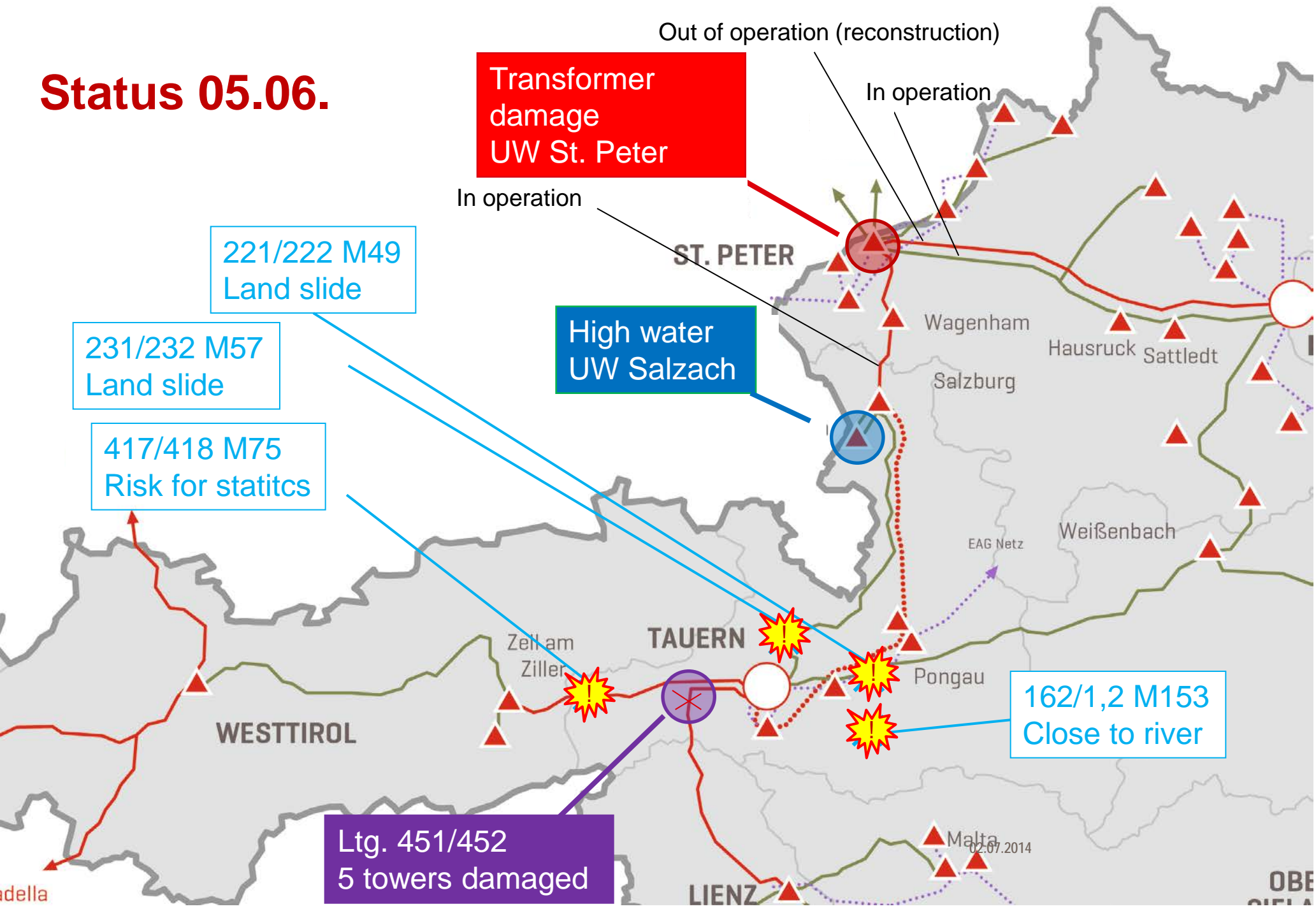
Tripping of double line with all-phase earth shortcircuit



Erecting an interim line with the „security package“



Status 05.06.



Overview



- APG's view on physical security
- Main challenges
- **ENTSO-E's work on physical security**

ENTSO-E's work on physical security (1)



- **Working groups CSP (Critical Systems Protection) and CSEG (Cyber Security Expert Group)**
 - Security experts from more than 15 TSOs (out of 41) in ENTSO-E
 - Working together on improvements, awareness, building common knowledge, exchange of experience, surveys about security issues
- **Paper regarding “Consideration of HILF & implementation of EPCIP directive”**
 - Getting knowledge about the different views on “High Impact – Low Frequency” events in Europe
 - Assessing the different stages and problems in implementing the EPCIP directive

ENTSO-E's work on physical security (2)



- Paper for “Risk mitigation practises regarding physical protection issues”
 - Getting an overview and sharing knowledge about good (and bad!) practises for security measures and risk assessment methodologies
 - Building awareness about the different threat scenarios in different countries in the ENTSO-E area
 - Sharing the status of intrusions/burglaries at different TSOs within ENTSO-E
 - Dealing with the topic “minimum security standards”
 - Unfortunately poor participation of TSOs in the eastern region

Thank you for your attention

