

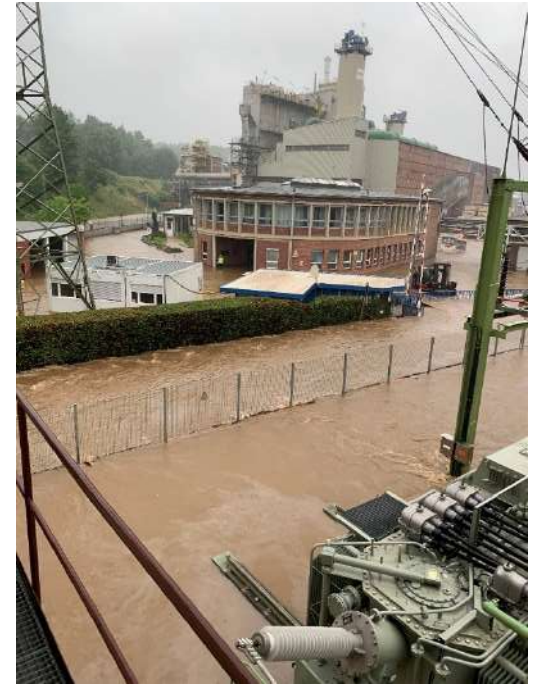
E.ON's response to experiencing disastrous floods

The DSO's perspective

14.03.2023



Impressions from flooding in Ahr and Erft region during summer 2021



Targets of resilient planning of distribution systems

Extreme (weather) events shall not have significant impact on resilient distribution systems

High-power backbone structures need to survive extreme events

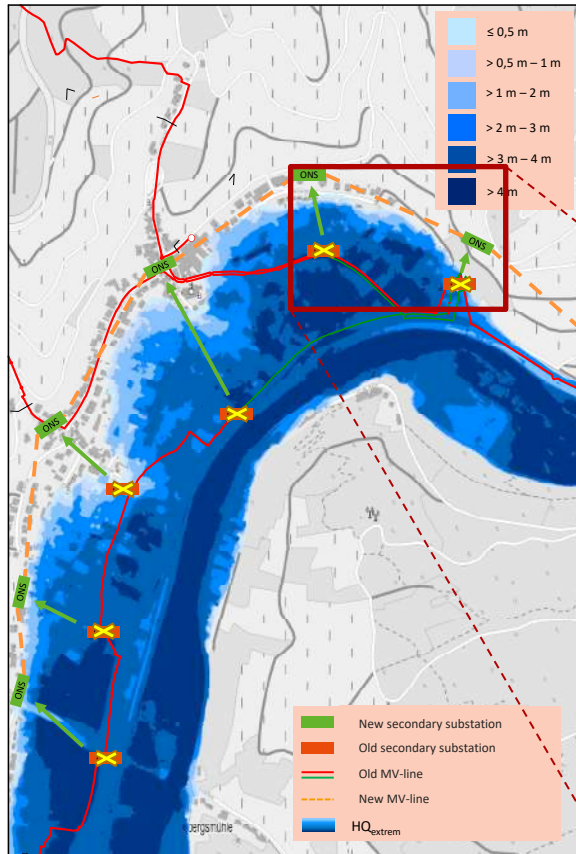
Critical infrastructures (hospitals, rescue services, etc.) must be supplied securely during incidents

Customers shall be re-supplied after a defined period

Different technologies exist to limit effects of flooding

Category	Operational state	Functionality
Flood-proof by location	No flooding	Ensured
Flood-proof by technology	Flooding allowed	Ensured
Flood-tolerant	Flooding is defined	Not ensured; No measures necessary to re-energise
Protected against flood	Flooding is defined	Not ensured; Measures necessary to re-energise

Don't care about 100-year-flood, plan for "extreme flooding"



Latest fluvial floods significantly exceed the expected flood of the century

Unsuitable location due to risk of pluvial flood caused by heavy rain

Use HQ_{extreme} -flood line as relevant criterion for grid planning

Add forecasts of pluvial floods and topological structures to further identify unsuitable locations



Additional measures necessary to cope with severe incidents



Increase number of spare parts and qualified personnel to resupply quickly.



Standardise further, decrease variety in assets.



Increase smartification but also blackout-proof communication to your assets.



Establish black-out proof communication to authorities and regular joint trainings.