



Blackouts and natural risks

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“Blackout” has become the common definition for the situation when electricity supply and demand are not balanced and security of supply fails. These failures have many impacts besides the lights going out, but this term is used commonly. Blackouts have drastic impacts for the society on whole and its citizens and some of them can influence big areas and last for long period, so the consequences are catastrophic. Even if at the European scale, the large extend blackouts are supposed to be exceptional, real frequency is relatively high, approximately once per two years.

According to statistics, blackouts are often caused by natural causes, especially lightning. An example of lightning caused blackout is New York blackout 1977, leading to the stand-by of nuclear power plant Indian Point and with overall cost more than 300 mil. USD. There is a clear a distinction between those blackouts caused by nature and those that were caused by other faults. Usually, the nature-caused disturbances as Canada 1988, Sweden 2005 and France 1999, stay inside one country. However, their duration can extend to several weeks, and thus the costs of the interruptions and social impacts are high. Blackouts of only technologic and/or anthropogenic origin are frequently shorter, but may concern more end-users, when cascading from one country to another.

Lightning is not the only natural event causing blackouts. Eighteen various case studies of blackout caused by natural events different then lightning were studied and following natural phenomenon found as a root causes: 1x forest fire, 1x snow calamity, 1x ice storm, 1x landslide, 1x high temperature, 1x geomagnetic storm, 2x earthquake, 2x inundation, 2x contact of line with trees, 6x storm (wind, hurricane. . .).

We can conclude, that natural event are frequent cause of blackout of medium or large extend and this phenomena should be studied more in details.

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