Figure 1: Threat scenarios leading to blackout

1)
a. How many threats are explicitly modelled in Figure 2?
3, one accidental, one deliberate and one non-human
b. How many threat scenarios are explicitly modelled in Figure 2?
5
c. How many unwanted incidents are explicitly modelled in Figure 2?
1
d. How many assets are explicitly modelled in Figure 2?
1
e. How many risks are explicitly modelled in Figure 2?
None, risks are not modelled in such diagrams.
f. How many treatments are explicitly modelled in Figure 2?
None.

2)
a. How many initiate relations are there in the diagram in Figure 2?
3
b. How many leads-to relations are there in the diagram in Figure 2?
5
c. How many of the leads-to relations are annotated with probability values?
5

3) Use the structured CORAS semantics to translate the threat diagram in Figure 2 into English.

Vertices
1. 'Operator mistake' is an accidental threat.
2. Threat scenario 'Outage of two or more transmission lines in the north/south corridor' occurs with undefined likelihood.
1. 'Sabotage at nuclear plant' is a deliberate threat.
2. Threat scenario 'Reduced nuclear availability' occurs with undefined likelihood.
3. 'Lack of rain' is a non-human threat.
4. Threat scenario 'Low hydro availability' occurs with likelihood '1:5 years'.
5. Threat scenario 'Capacity shortage' occurs with likelihood '1:4 years'.
6. Threat scenario 'Unstable network' occurs with likelihood '1:10 years'.
7. Unwanted incident 'Blackout' occurs with likelihood '1:10 years'.
8. 'Power production' is an asset.

Relations
1. 'Operator mistake' exploits vulnerability 'Interface bottleneck' to initiate 'Outage of two or more transmission lines in the north/south corridor' with likelihood '1:1 year'.
2. 'Outage of two or more transmission lines in the north/south corridor' leads to 'Blackout' with conditional likelihood '0.1'.
3. 'Sabotage at nuclear plant' initiates 'Reduced nuclear availability' with likelihood '1:20 years'.
4. 'Reduced nuclear availability' leads to 'Capacity shortage' with conditional likelihood '1.0'.
5. 'Lack of rain' initiates 'Low hydro availability' with undefined likelihood.
6. 'Low hydro availability' leads to 'Capacity shortage' with conditional likelihood '1.0'.
7. 'Capacity shortage' leads to 'Unstable network' with conditional likelihood '0.4'.
8. 'Unstable network' leads to 'Minor area blackout' with conditional likelihood '0.2'.
9. 'Minor area blackout' impacts 'Power production' with consequence 'moderate'.

4) Draw a threat diagram to model the following threat scenarios towards a chat service running on a cell phone:

A thief steals the phone. After stealing the phone he manages to guess the user name and password of the user. He uses the username and password to perform an unauthorised login to the chat service.

There is one identified asset: `User identity'.

Here is one possible solution:
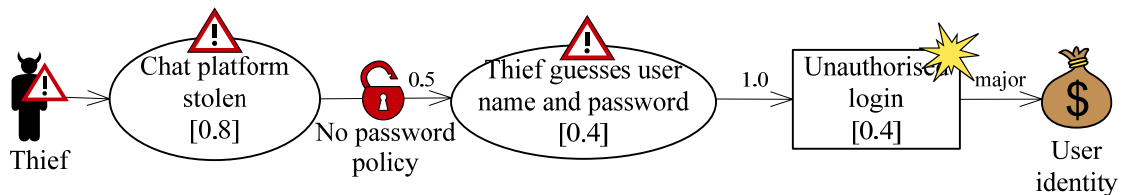
a. In which way may an unauthorised login harm the asset `User identity'?

An unauthorised login may for example harm the asset `User identity'
- if the thief sends spam, offensive messages and the like under the stolen id, the credibility of the id gets compromised
- if it is employed as id for many different services, then access to the `User identity' may provide access to these