

How Big a Buttress?
Regulation and Risk Management in the
Face of High Impact, Low Frequency
Events

NECPUC

Risk Management Breakout Session

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When we say that a catastrophic event is "unlikely", what does "unlikely" mean to you?

Its chance of happening
is less than 50%

Its chance of happening
is less than 40%

Its chance of happening
is less than 30%

Its chance of happening
is less than 20%

Its chance of happening
is less than 10%

Its chance of happening
is less than 5%

IPCC reports uncertainty definitions

Likelihood Terminology	Likelihood of the occurrence/ outcome
Virtually certain	> 99% probability
Extremely likely	> 95% probability
Very likely	> 90% probability
Likely	> 66% probability
More likely than not	> 50% probability
About as likely as not	33 to 66% probability
Unlikely	< 33% probability
Very unlikely	< 10% probability
Extremely unlikely	< 5% probability
Exceptionally unlikely	< 1% probability

The dam will breach. Engineers have provided you, a high town official with two alternative actions. Please choose one :

Have town residents take route A out of town. There is a 100% chance of saving 50% of the town's inhabitants

Have town residents take route B. There is 50% chance of saving 100% of the town's inhabitants. There is 50% chance of everyone perishing

An electric utility has received approval to reduce tree-trimming and instead allocate those funds to prepare some of its infrastructure for increased coastal flooding. A few months later there is a blackout because tree branches fell over a major transmission line. Did the regulatory commission make a mistake approving this investment?

Yes, utilities should never stop trimming trees.
Chances of blackouts are dramatically increased

No, this type of blackout may be preferable to
permanent damage of infrastructure due to flooding

No, it is wrong to judge a decision by its outcome

I do not know

In the previous example the commission decision should be judged based on the process. Which of the following you think is less important in a process to inform this decision

Analysis to determine possible blackout scenarios (area affected, duration) and the probabilities of these scenarios

Analysis to determine a robust allocation of budget for tree-trimming and budget for hardening of infrastructure against coastal-flooding

A town hall meeting to listen to the concerns of users and elicit their preferences for trading one risk for another

A comparison of the expected value of the costs of blackouts due to lack of tree-trimming vs due to coastal flooding

According to MIT experts, there is a 50% that a Fukushima event (>166 billion in losses) will occur in the next 50 years. For the U.S., this likelihood is smaller, but still there is a non-zero probability that a large nuclear disaster could occur, even after best safety measures are taken. Does this mean that

Nuclear plants should not be kept alive with additional subsidies

We should do everything possible to reduce the risks associated to nuclear plants

We should acknowledge that retiring nuclear plants creates other risks and ponder decisions accordingly

Not sure