

RISK INTERDEPENDENCIES:

Utility Risks Are Not Isolated Events

By Julie Ryan

Mark Twain once wrote, “Necessity is the mother of taking risks.” While he was probably not referring to the electric industry at the time, this observation rings very true for our sector. Electricity is a necessary service in our communities, but it is not without risks. Utility managers identify, manage, and mitigate those risks as part of running the utility. But how often do we sit down and map the risks? If we did, we could think more proactively about how to address or change the risks. And for the risks that we cannot control, we could better prepare for the risks.

To do this well, utility leaders must consider how risks are related to better understand the interdependency of risks. A typical “risk inventory” is a list of risks that wise and experienced minds within the utility develop. Often the next step is to quantify the probability of the risks occurring and the severity of the risks or their impact. But after completing an initial inventory, then it is important to consider risk interdependencies. This is because risks do not occur in isolation, but instead, are much more complex. Exploring the interdependencies helps us see how the risks interact. From here, we have better insight to their cumulative impact.

The theme that “no man is an island” is true of most U.S. and Canadian utilities. Utilities operate in an integrated grid with other utilities and power generators. When we look at risks that can occur within the utility, we need to consider whether this also impacts our neighboring utilities. If yes, then this leads to different mitigation than if we are addressing risks unique to our organization. For example, if our utility is concerned about having the right workforce in place, possibly because of pending retirements or new technology requiring different skillsets and training, chances are that your neighboring

utilities face a similar challenge. So, our mitigation plan must take that into consideration (and raiding their ranks might not be a very sustainable plan). Or if a utility is concerned about a major transmission outage, chances are the outage will have ripple effects across the grid. How will we recover from the event when others likewise may be impacted? Perhaps the best mitigation is a regional solution. Or if a utility is concerned about major storm impact, most likely the neighboring utilities will be as well. In this case, our mitigation must look outside our immediate region.

Another method to assess risk interdependencies is to ask, “What is the flow of events?” Consider a pebble thrown into a pond, causing widening ripples of other risks. In other words, a risk event can create multiple risks. And depending upon how an event plays out, there can be risks that occur afterward. Risks that happen from one risk event are often called “additive risks;” a risk that is triggered sequentially after the initial risk is a “cascading risk.”

For example, consider the case where a utility identifies a dam failure in its risk inventory. While this is appropriately categorized as a major risk, there is complexity that must be examined. This risk event could have several additive risks, such as flooding and loss of hydro generation. Then there could be cascading risks following the two additive risks. Cascading risks from the flooding could be safety risk, property damage risk, compliance risk, and liability risk. The cascading risks to the loss of hydro generation could be large construction cost risk; cash flow challenges related to loss of sales revenue or the higher cost of replacement power cost; and increasing customer rates due to the lost resource. Both the flooding and loss of generation have a cascading reputation risk within the community and in the sector if not managed well.

Lastly, let’s remember “The Perfect Storm.” You may recall the book written by Sebastian Junger about the collision of three storm systems off the New England coast in late October 1991 and its catastrophic impact on the fishing boat Andrea Gail. While many people think of a hundred-year event as something impossible to scope, the electric sector does consider these events in its planning. Therefore, the final stage of risk event mapping is to ask, “What would be a perfect storm for our utility? What are the two or three colliding events that would be devastating?” The hard part of the discussion is contemplating what might happen. Once that is out on the table, it is possible to proactively prepare a response plan if the event occurred.

The reason for examining risk interdependencies is to ensure we give appropriate weight to certain risks. If we look at risks in isolation, we may underestimate the true impact or develop a suboptimal mitigation strategy. By looking holistically at the risk chain, we can develop more robust mitigation.

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