

Southern California Edison
2022-WMPs – 2022 Wildfire Mitigation Plan Updates

DATA REQUEST SET CalAdvocates - SCE - 2022 WMP - 14

To: Cal Advocates
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Response Date: 4/8/2022

Question 01 :

On page 523 of its 2022 WMP Update, SCE states that it “leverages epidemiological studies and information drawn from past widespread power outage events including the 2003 Northeast Blackout, the 2011 Southwest Blackout, and the IOUs’ 2019 PSPS post-event reports. The resulting estimates of fatalities and serious injuries per CMI are intended to approximate potential safety consequences due to the power outage, such as illnesses resulting from food spoilage or exacerbation of existing underlying health conditions.”

Please provide the following:

- a. SCE’s estimate of fatalities and serious injuries per customer minute of interruption that SCE uses when estimating the safety consequences of a PSPS event.
- b. A breakdown of the data on fatalities and serious injuries per customer minute of interruption that is derived from each component SCE lists (“epidemiological studies”, the 2003 Northeast Blackout, the 2011 Southwest Blackout, and the IOUs’ 2019 PSPS post-event reports). Please use the following table as a template for your response:

Event	Fatalities	Serious injuries	CMI	Estimate of fatalities and serious injuries per CMI
Epidemiological Studies				
2003 Northeast Blackout				
2011 Southwest Blackout				
2019 PSPS Post-Event Reports				

- c. A description of how SCE derived its estimate of fatalities and serious injuries per customer minute of interruption from the IOUs’ 2019 PSPS post-event reports.

Response to Question 01 :

a) For purposes of risk modeling in SCE's 2022 WMP Update, SCE's estimates of fatalities and serious injuries per customer minute of interruption are based on the following assumptions and equation:

- 100 fatalities –SCE rounded this number upwards from an estimated count of 90 from an epidemiological study of the 2003 Northeast Blackout.
 - See Anderson GB, Bell ML. Lights out: impact of the August 2003 power outage on mortality in New York, NY. *Epidemiology*. 2012;23(2):189-193. doi:10.1097/EDE.0b013e318245c61c
- 50,000,000 people – The people impacted by the 2003 Northeast Blackout.
- 48 hours – The length of time of the 2003 Northeast Blackout.
 - See Final Report U.S.-Canada Power System Outage Task Force Final Report on the Implementation of the Task Force Recommendations; Natural Resources Canada/U.S. Department of Energy September 2006
- 3 events - SCE used three events to estimate fatalities
 - 2003 Northeast Blackout. See assumptions above (100 fatalities).
 - 2011 Southwest Blackout (zero reported fatalities)
 - See Arizona-Southern California Outages on September 8, 2011, Causes and Recommendations, Federal Energy Regulatory Commission and the North American Reliability Corporation, April 2012 (Report). The total count of customers impacted and CMI can be found in this report. SCE did not use the specific CMI estimate for this event.
 - 2019 PSPS events (zero reported fatalities)
 - See Public Report on the Late 2019 Public Safety Power Shutoff Events, Safety Enforcement Division, April 30, 2020. SCE did not use the specific CMI cited in this report. SCE also has no recorded cases of fatalities that have been causally linked to any of its PSPS events.
- The equation to calculate fatalities per unit of CMI based on the assumptions above is as follows:
 - $(100 / (50,000,000 * 48 * 60)) / 3 = 0.00000000023148$ fatalities per customer minute of interruption (CMI)

- The results of our epidemiological research on the topic of serious injuries included the following paper. This research proved inconclusive. SCE also has no recorded cases of serious injuries causally linked to any of its PSPS events.
 - See Lin S, Fletcher BA, Luo M, Chinery R, Hwang SA. Health impact in New York City during the Northeastern blackout of 2003. Public Health Rep. 2011;126(3):384-393.

Instead, SCE used the same serious injury to fatality ratio that we currently have used for wildfire risk modeling. That ratio is based on assumptions used in SCEs 2018 RAMP, and is 8.3 serious injuries per fatality

- $0.00000000023148 \text{ fatalities per customer minute of interruption (CMI) } * 8.3 = 0.00000000192130 \text{ Serious injuries per CMI}$

b. Except as noted above, completion of the table would require additional research/analysis. See response to part (a), which describes how SCE used the stated events to derive the assumptions and calculations for this metric.

c. SCE did not derive its estimate of fatalities and serious injuries from the IOUs' 2019 PSPS post-event reports. Please see response to part (a) for how SCE used SED's public report on the late 2019 public safety power shut-off events, as noted above.