Wildfires, power outages, and vulnerability in California

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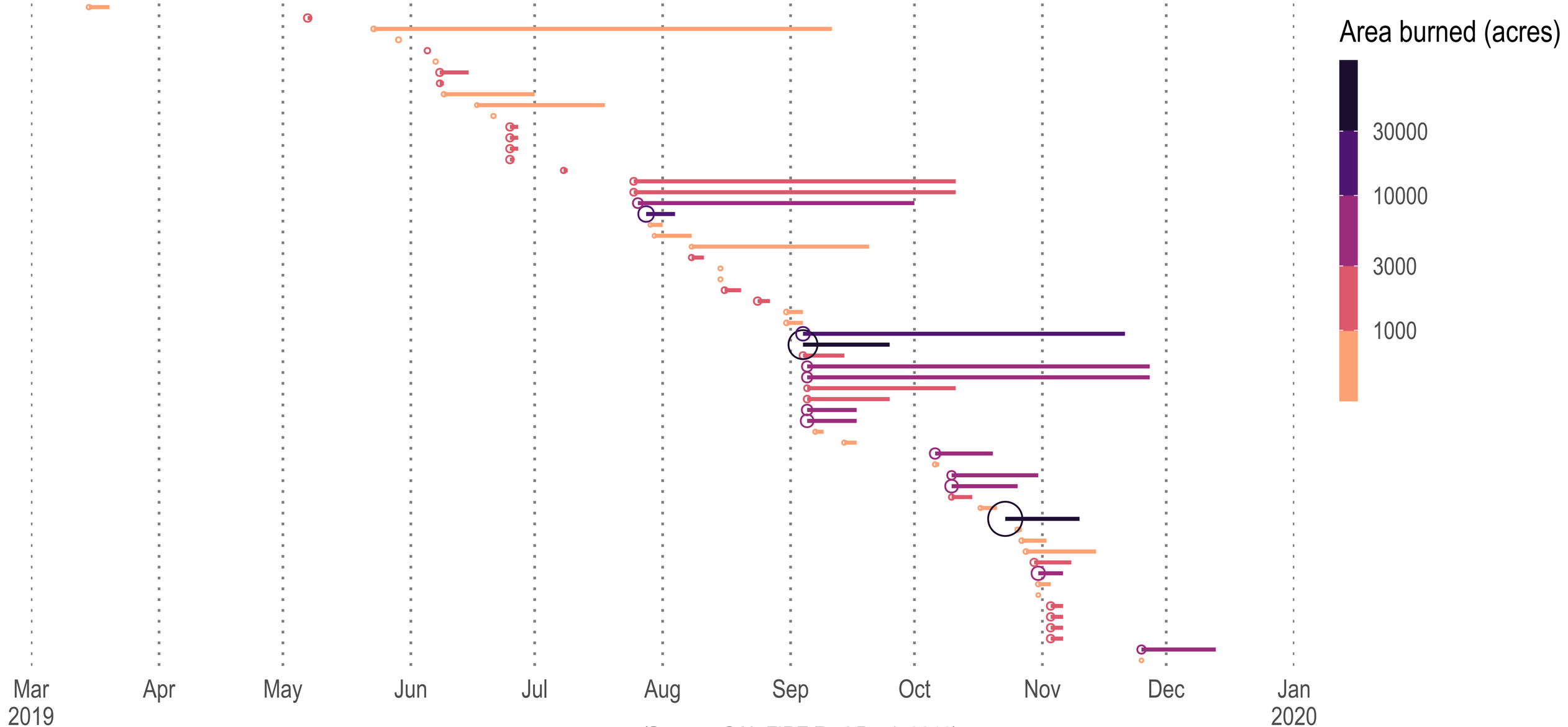
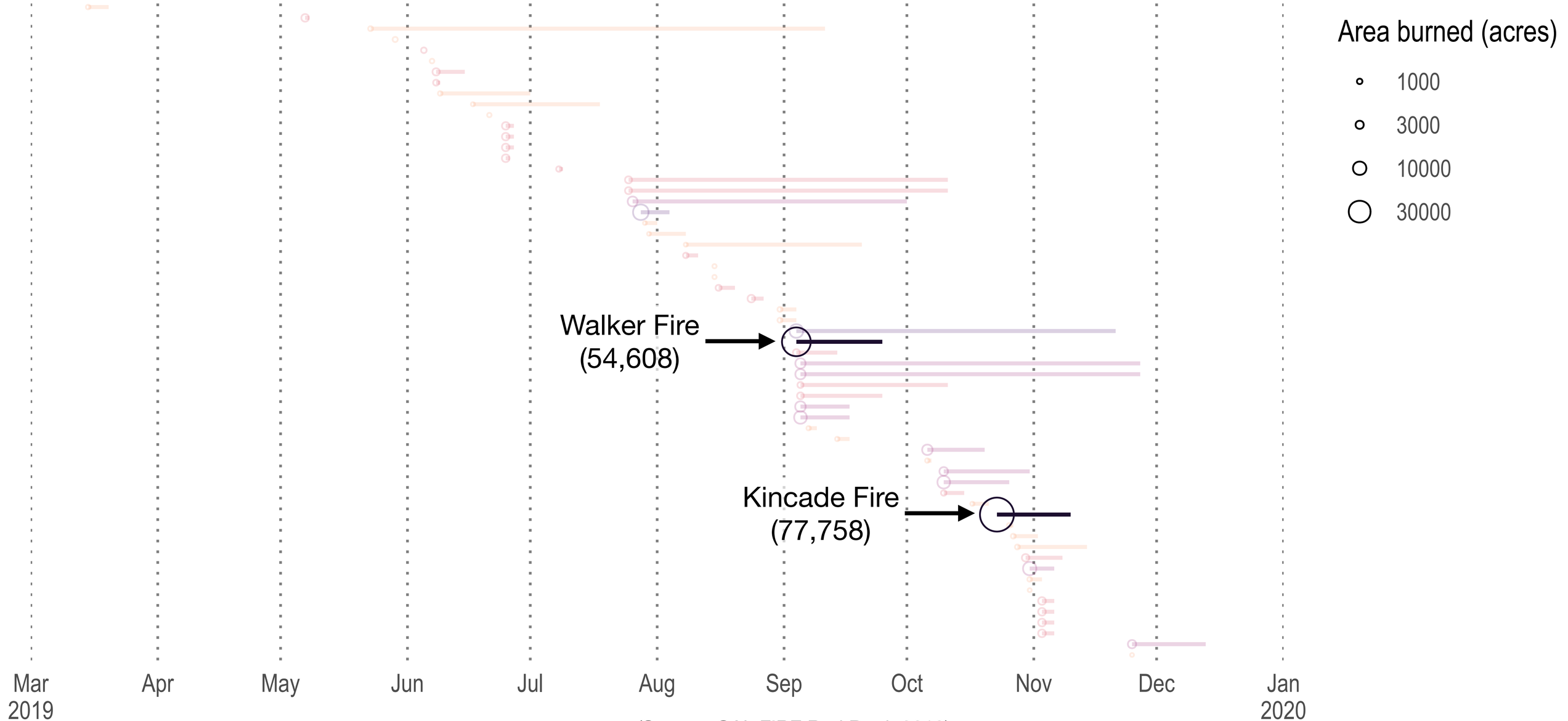
California Fires in 2019



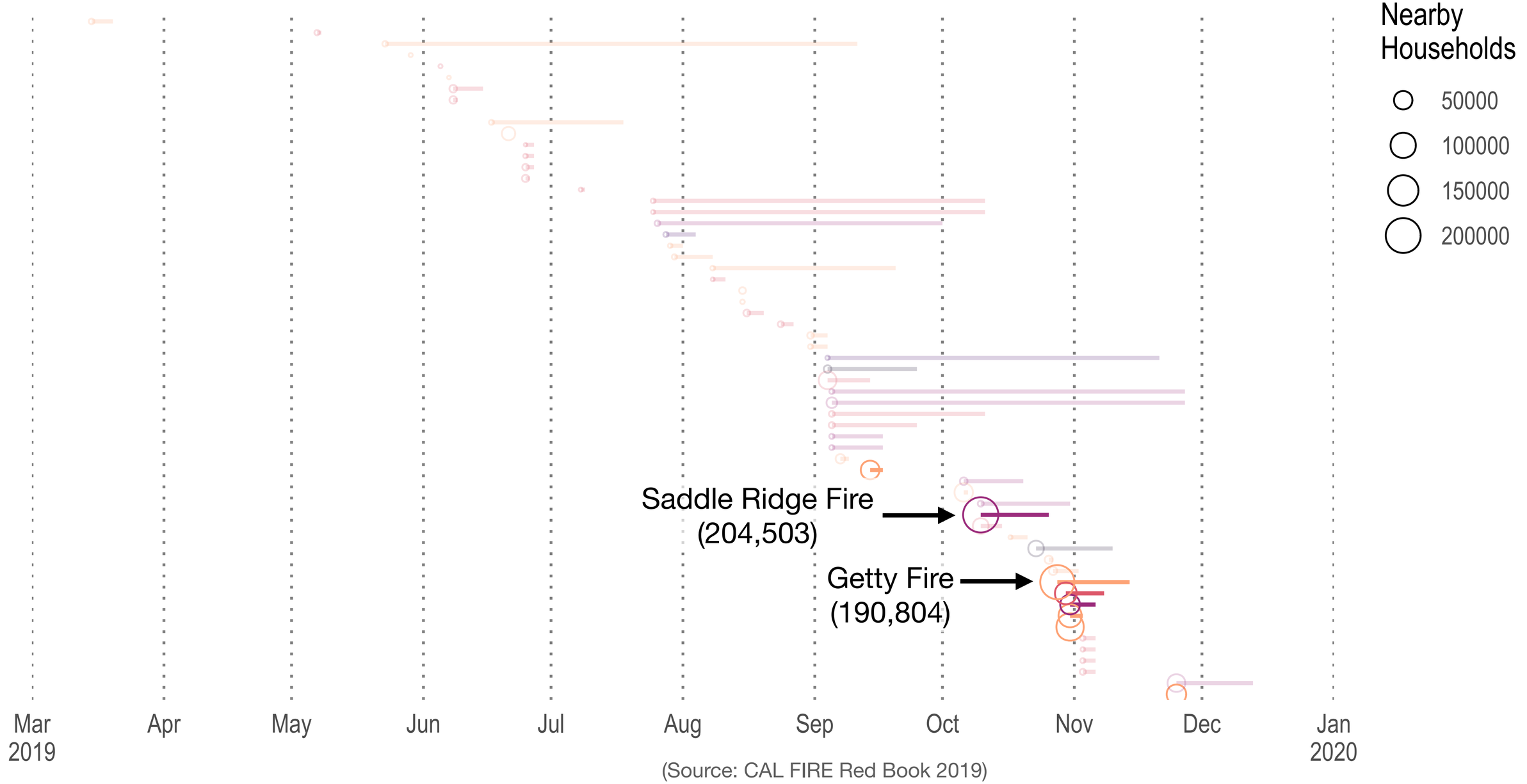
(Source: CAL FIRE Red Book 2019)

Two Largest Fires in 2019



(Source: CAL FIRE Red Book 2019)

Fires that threatened households



(Source: CAL FIRE Red Book 2019)

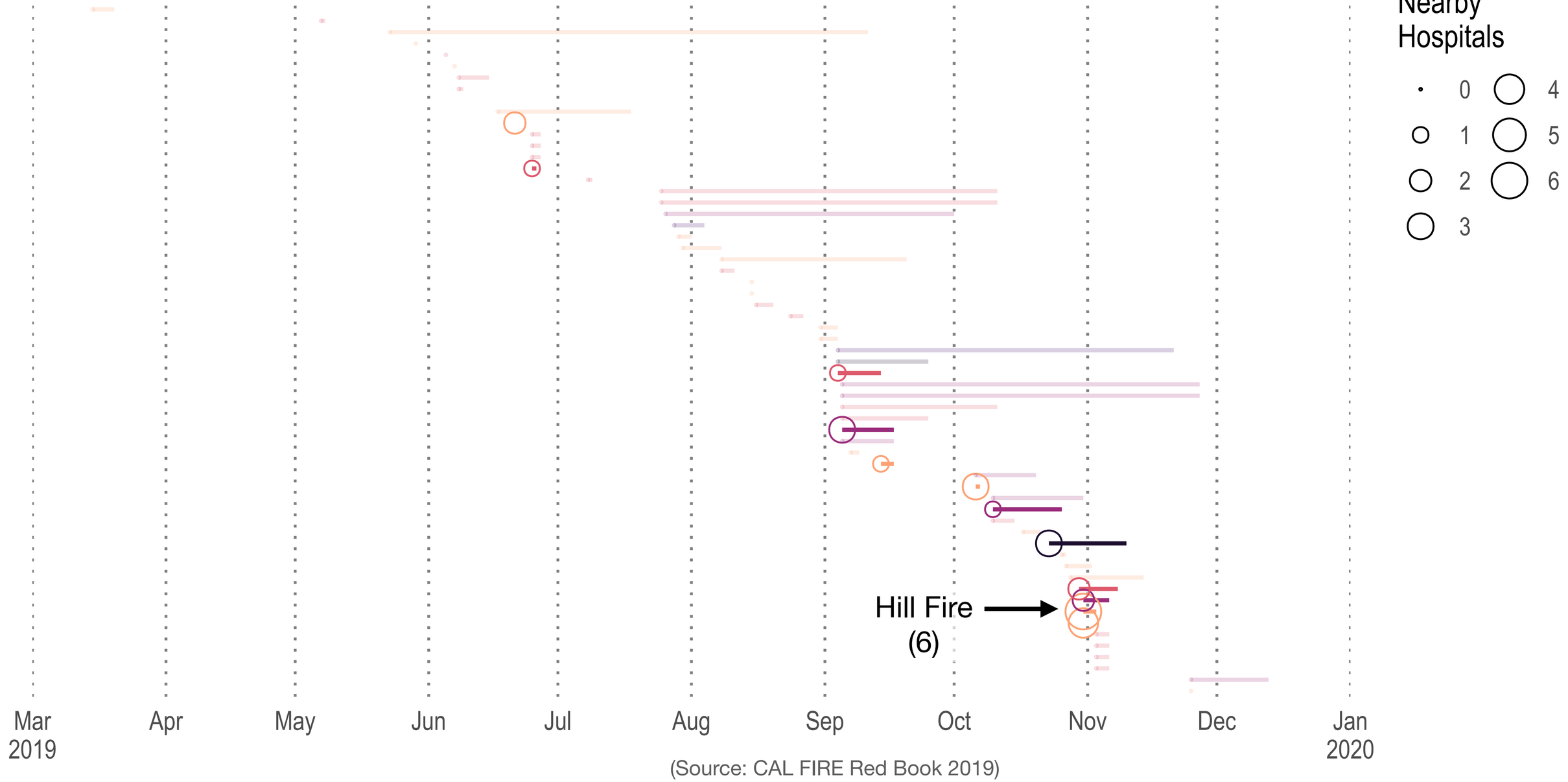
Getty Fire

Nearby Households

Mar 2019 | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan 2020

(Source: CAL FIRE Red Book 2019)

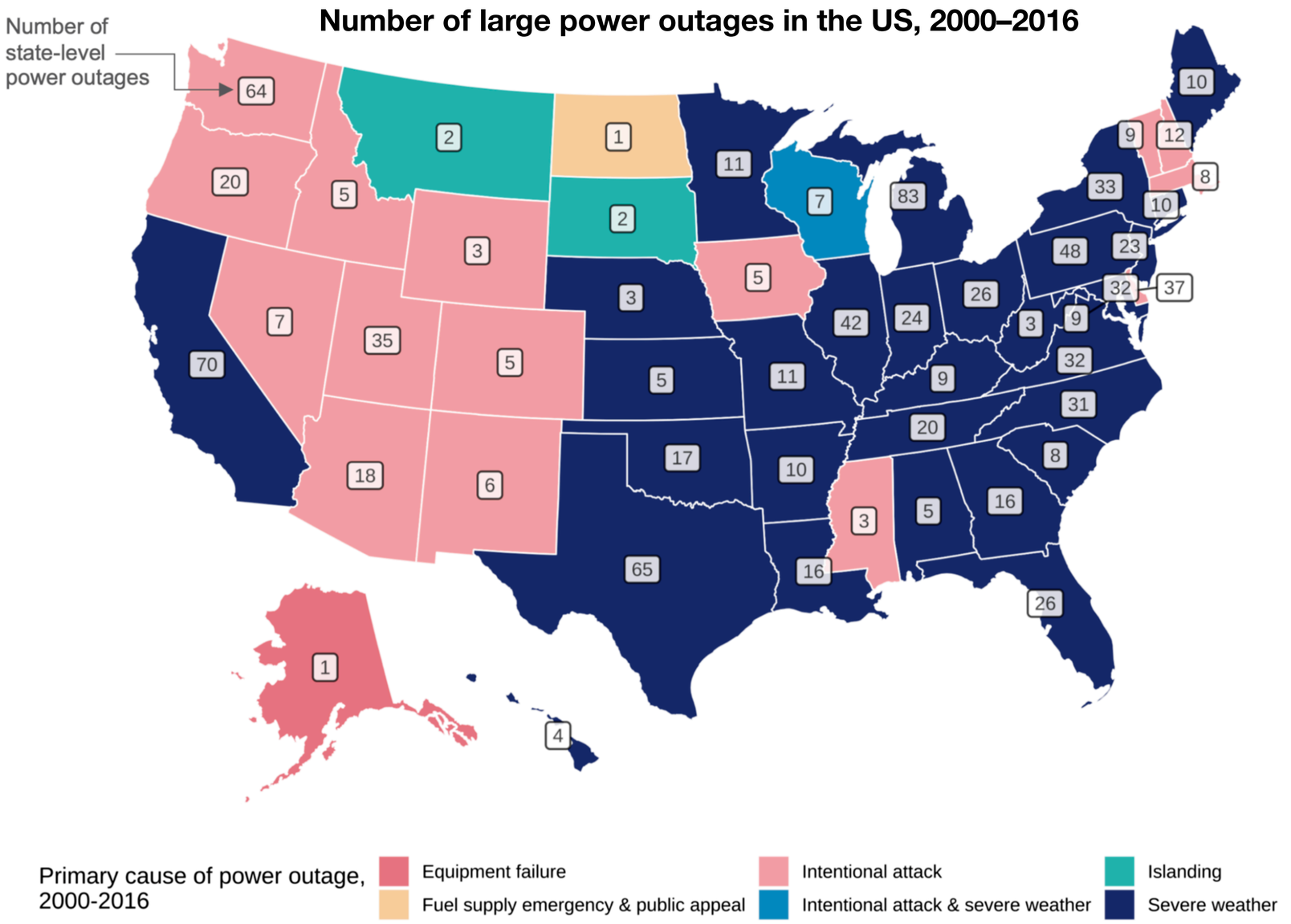
Fires that threatened hospitals



(Source: CAL FIRE Red Book 2019)

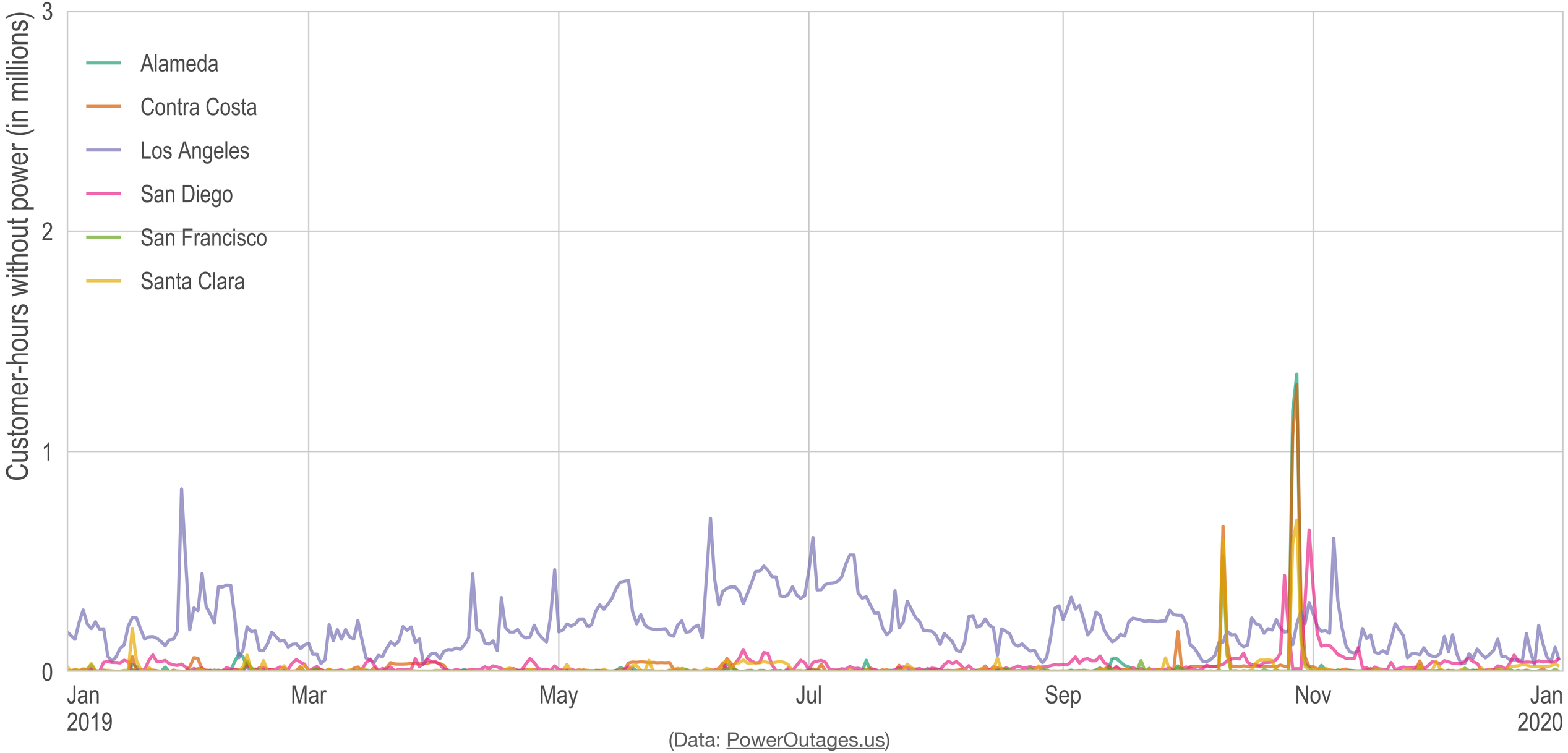
Power outages can be deadly

- Carbon monoxide poisoning
- Gastrointestinal illness
- Heart attack
- Injury
- Mental health
- Renal disease
- Temperature-related illness



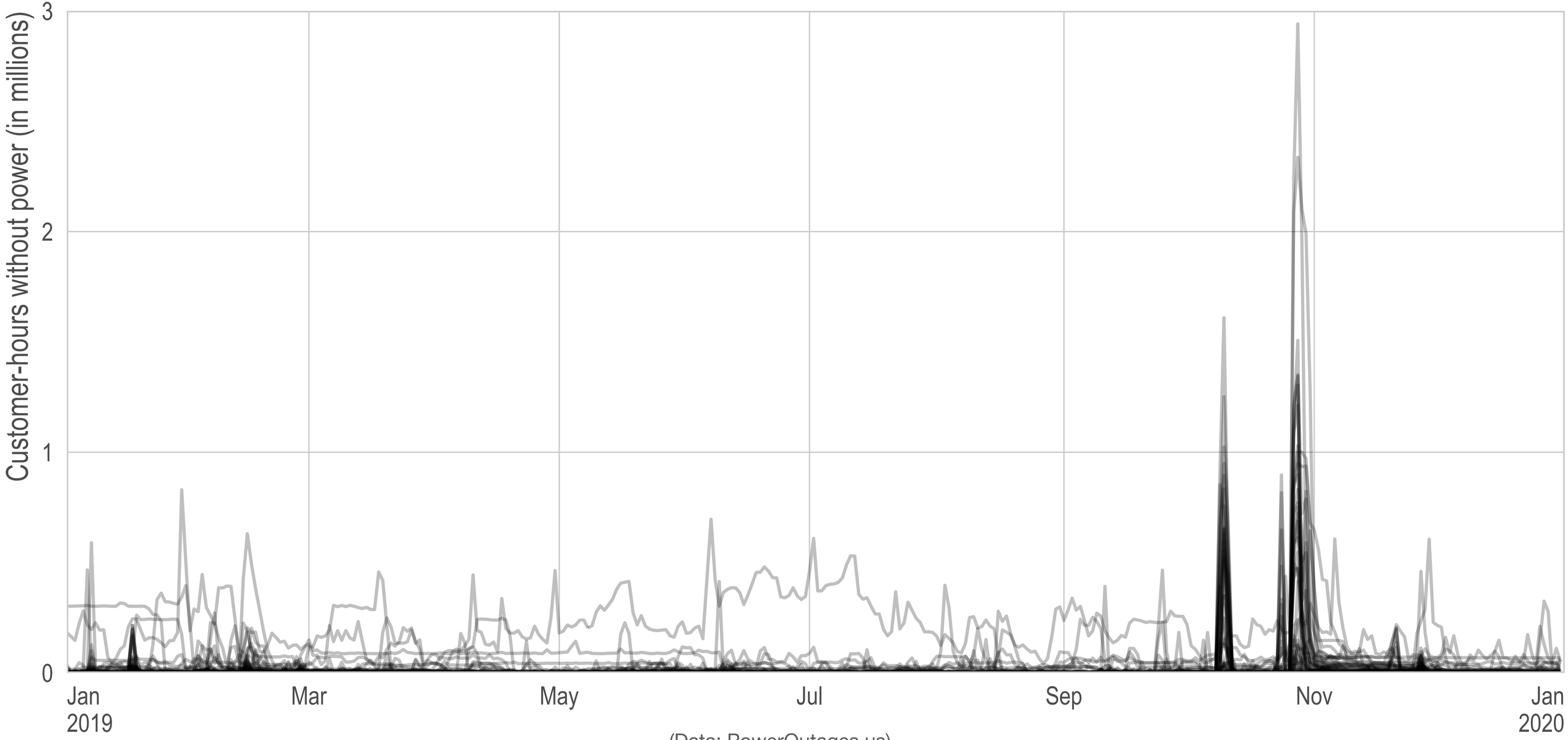
(Source: Casey, Fukurai, Hernandez, Balsari, & Kiang in *Current Environmental Health Reports 2020*)

Power outages for selected counties



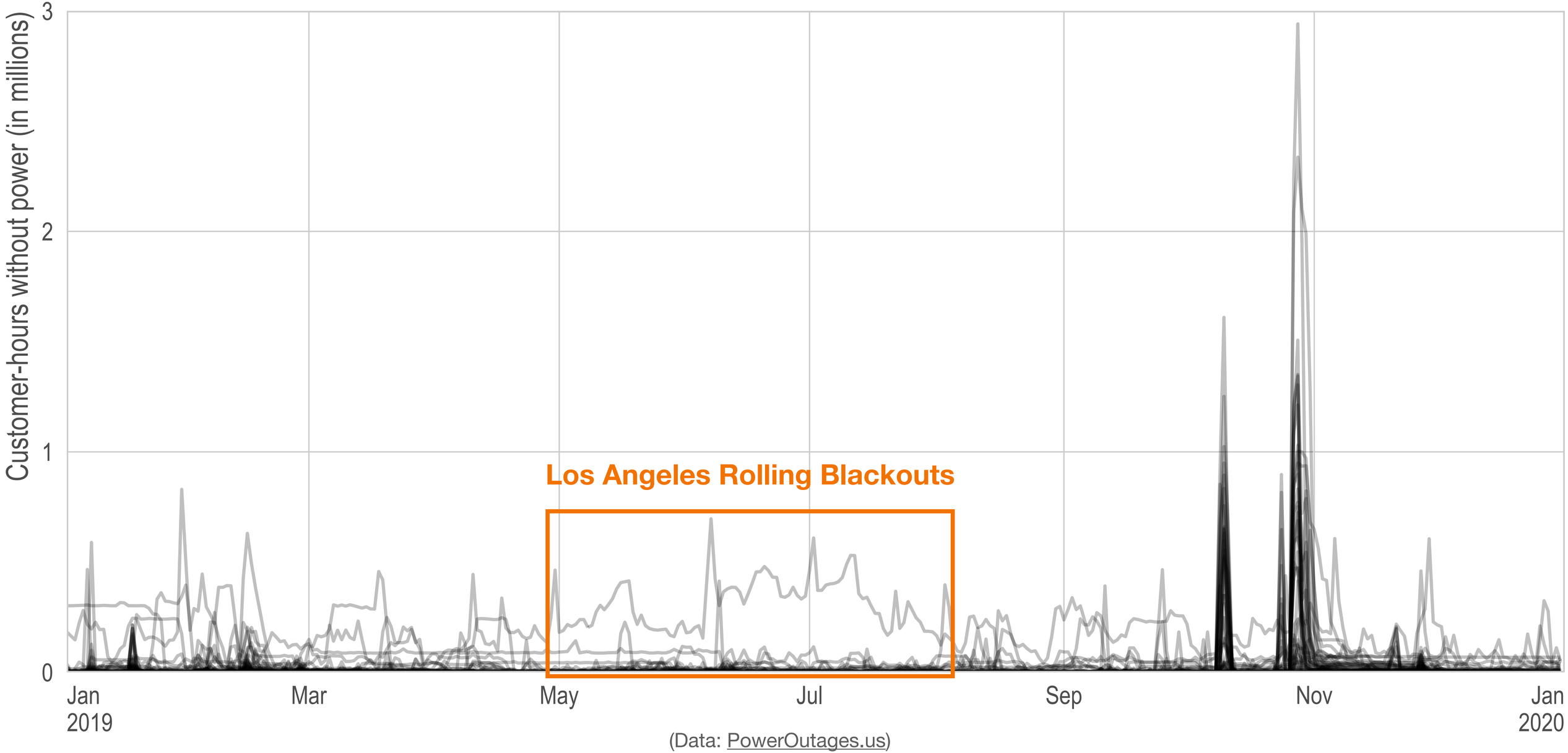
(Data: PowerOutages.us)

Power outages are common



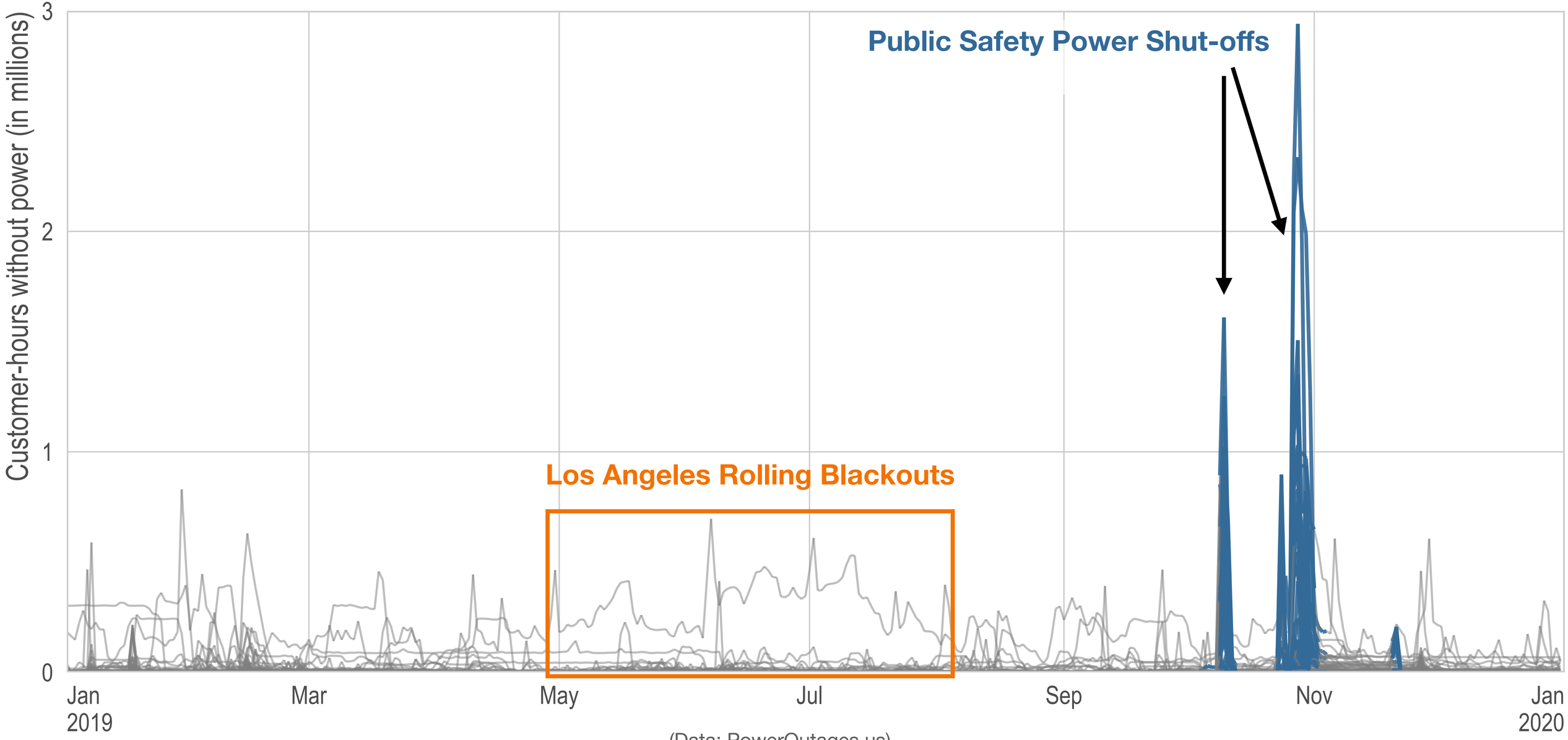
(Data: PowerOutages.us)

Rolling blackouts in LA



(Data: PowerOutages.us)

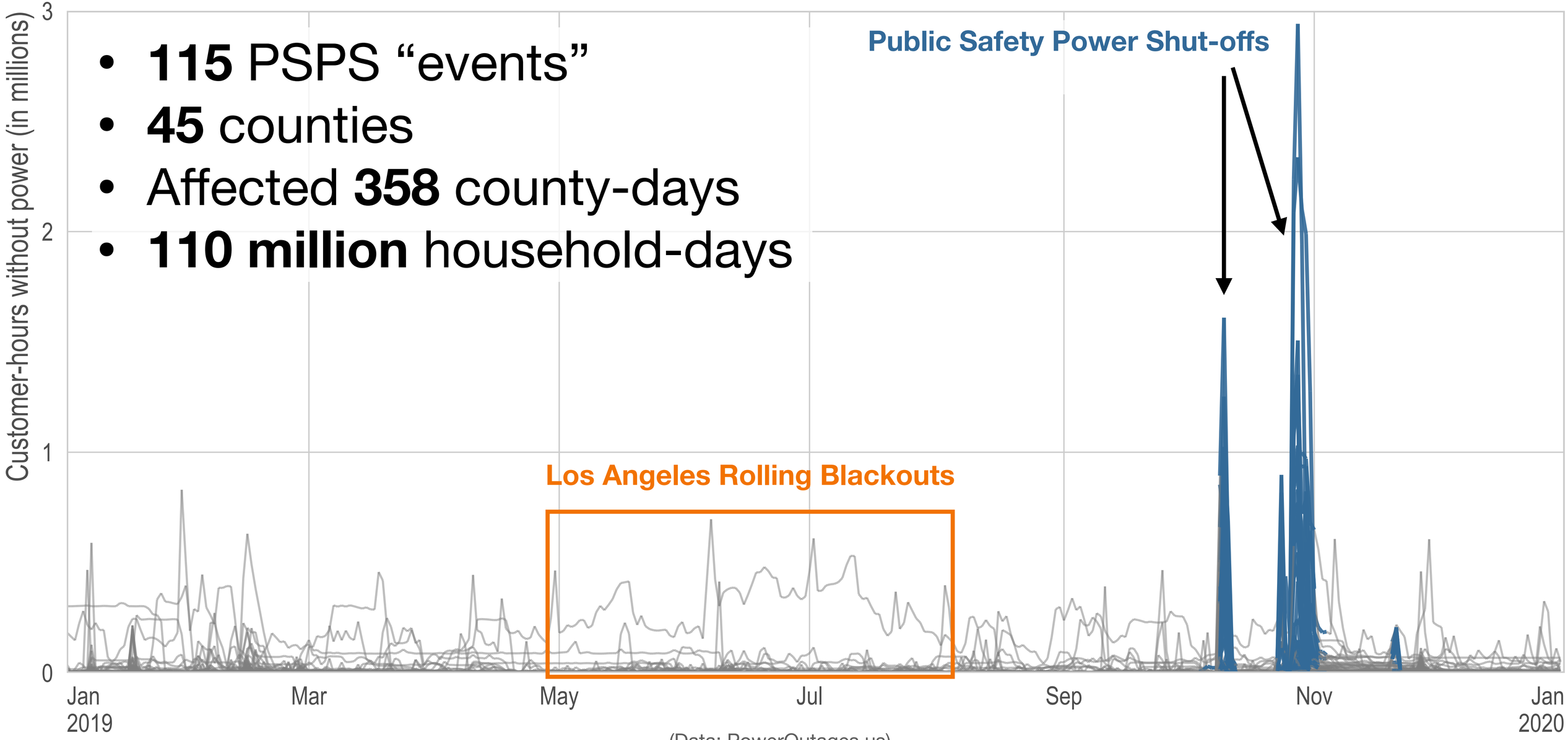
Public safety power shut-offs



(Data: PowerOutages.us)

Public safety power shut-offs

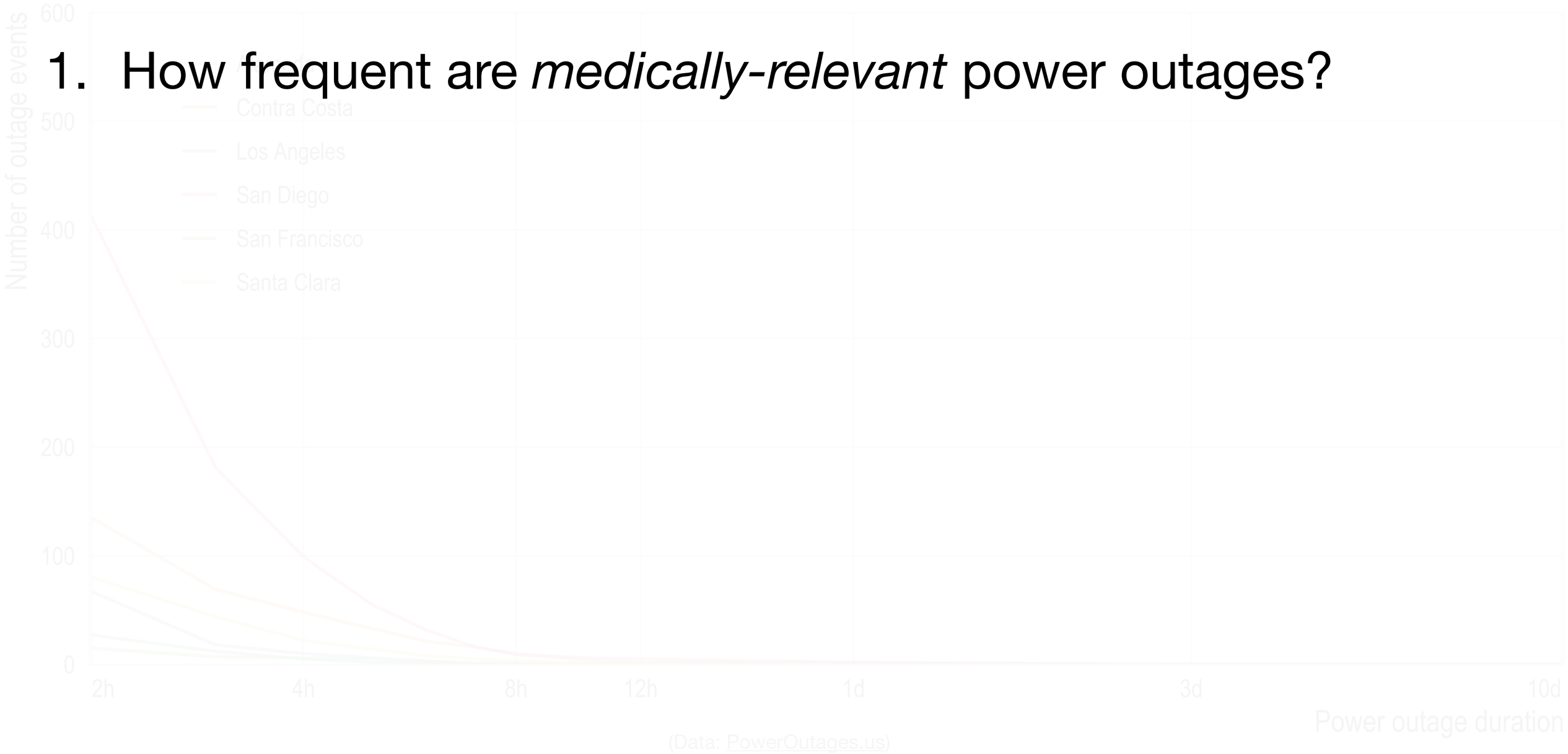
- **115** PSPS “events”
- **45** counties
- Affected **358** county-days
- **110 million** household-days



(Data: PowerOutages.us)

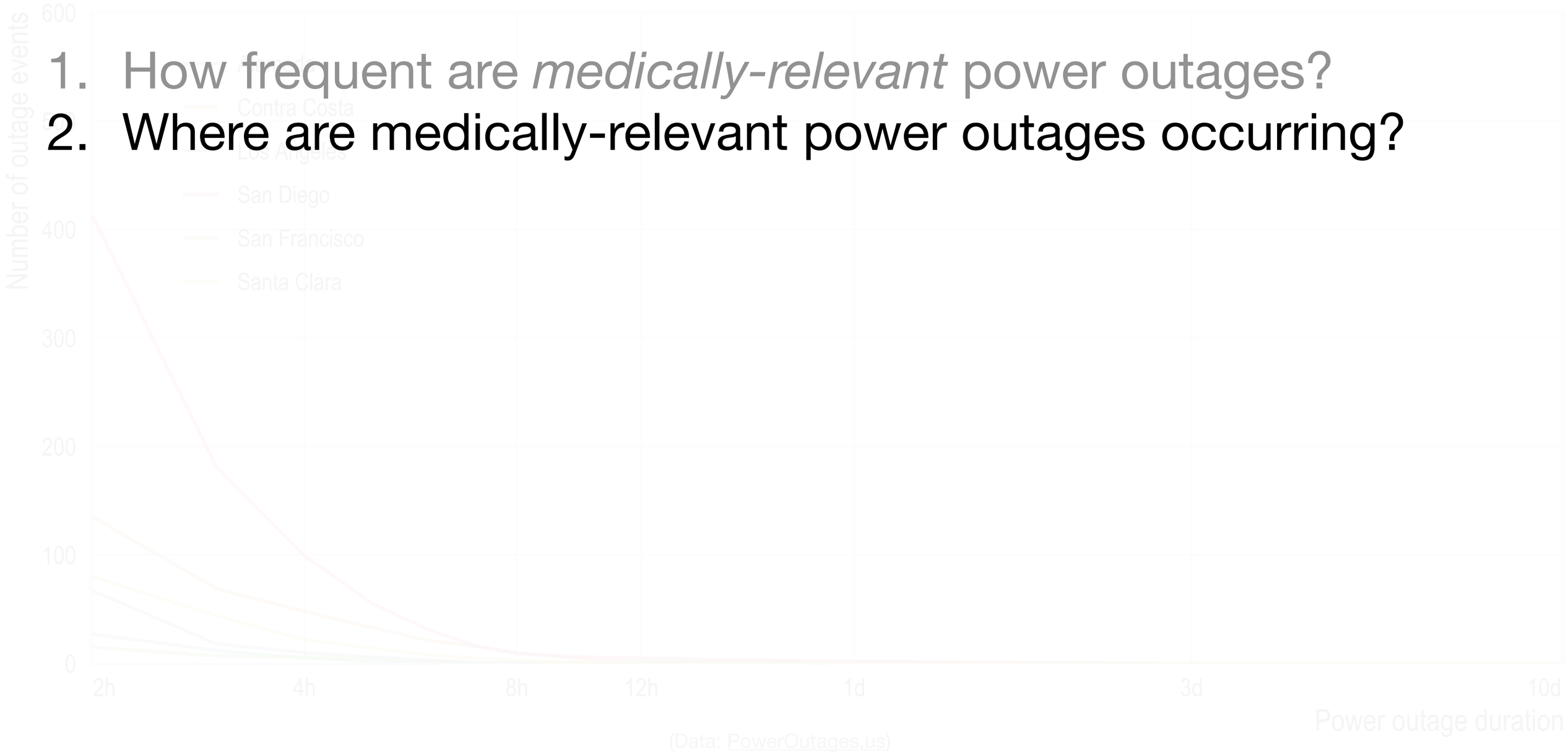
Four Questions

1. How frequent are *medically-relevant* power outages?



Four Questions

1. How frequent are *medically-relevant* power outages?
2. Where are medically-relevant power outages occurring?



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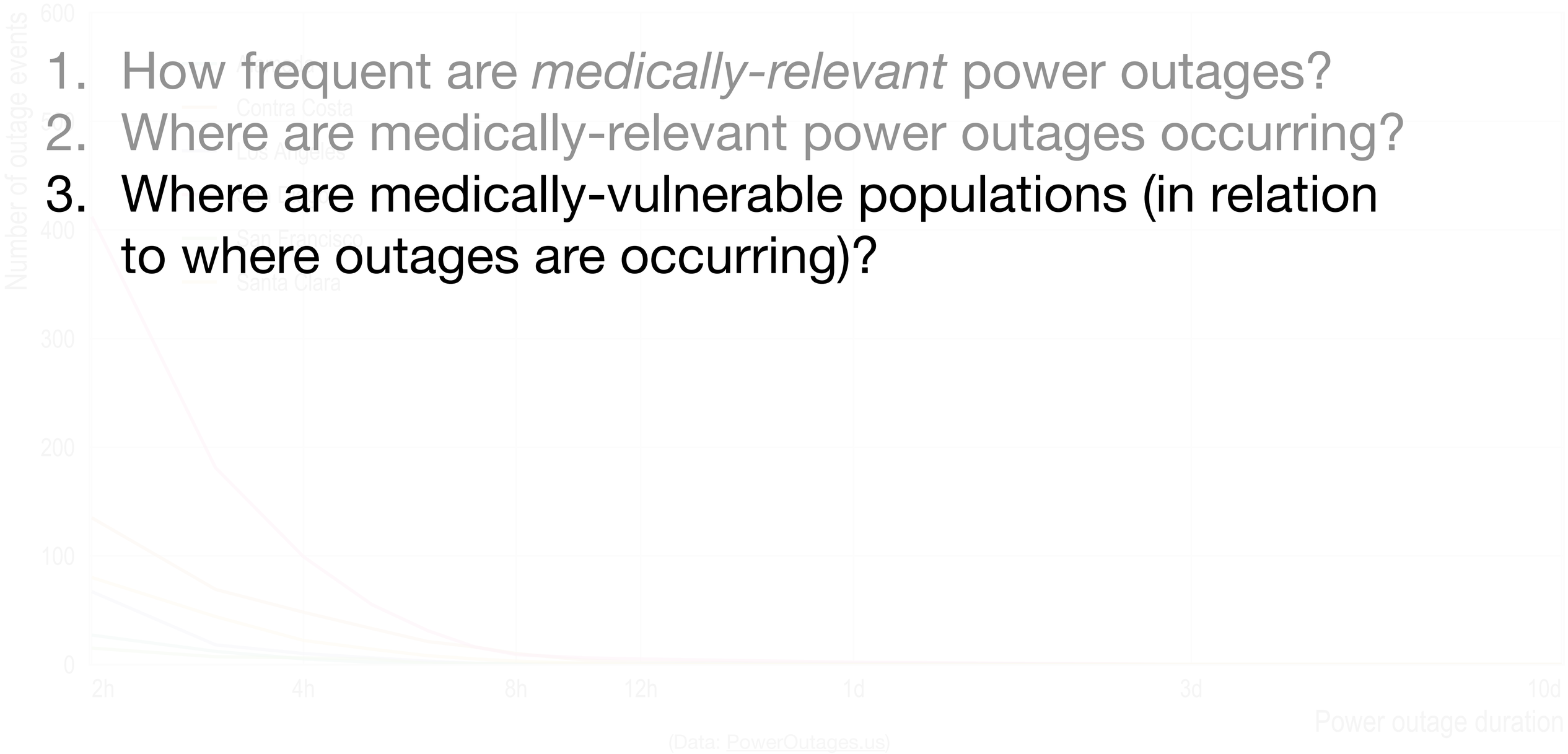
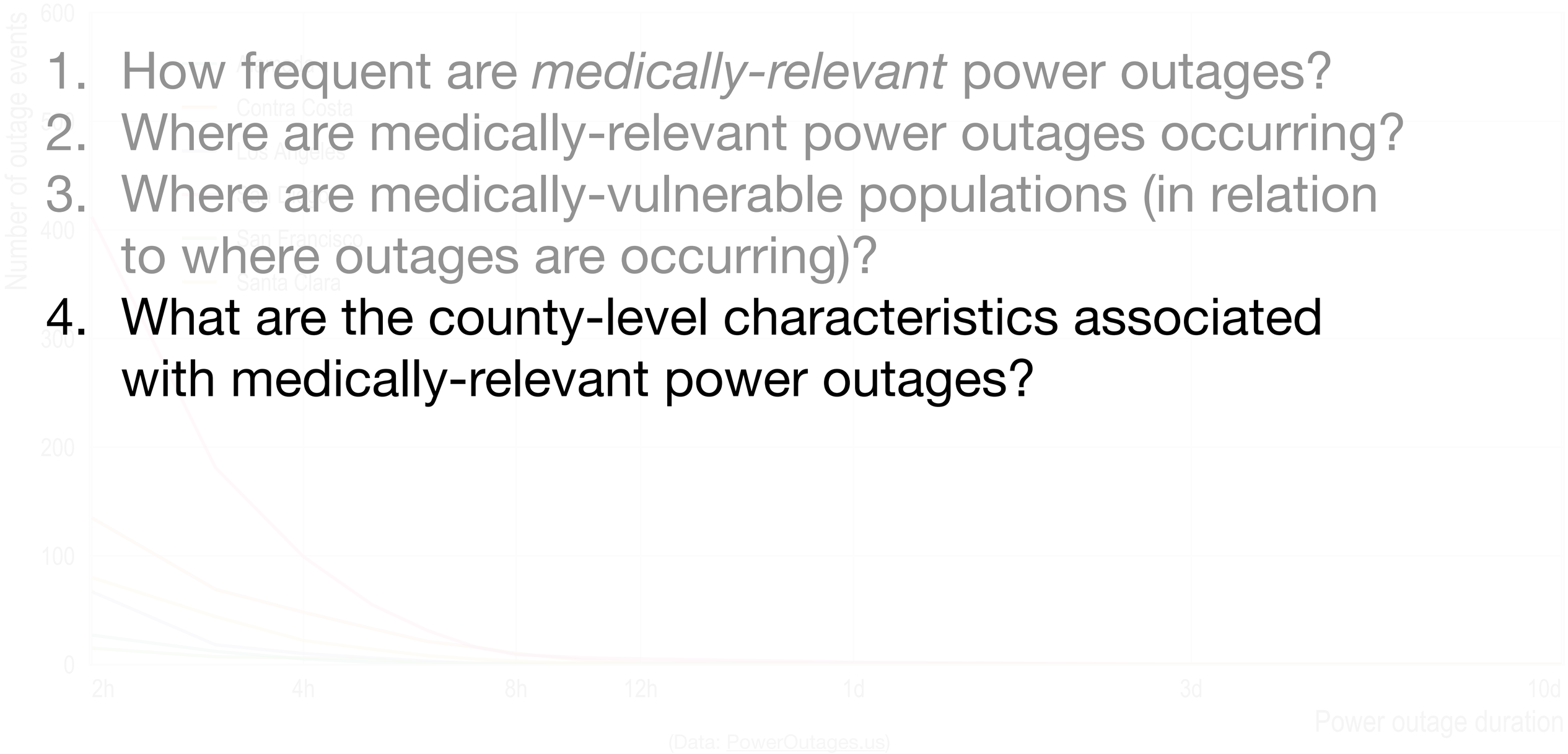
3. Where are medically-vulnerable populations (in relation to where outages are occurring)?

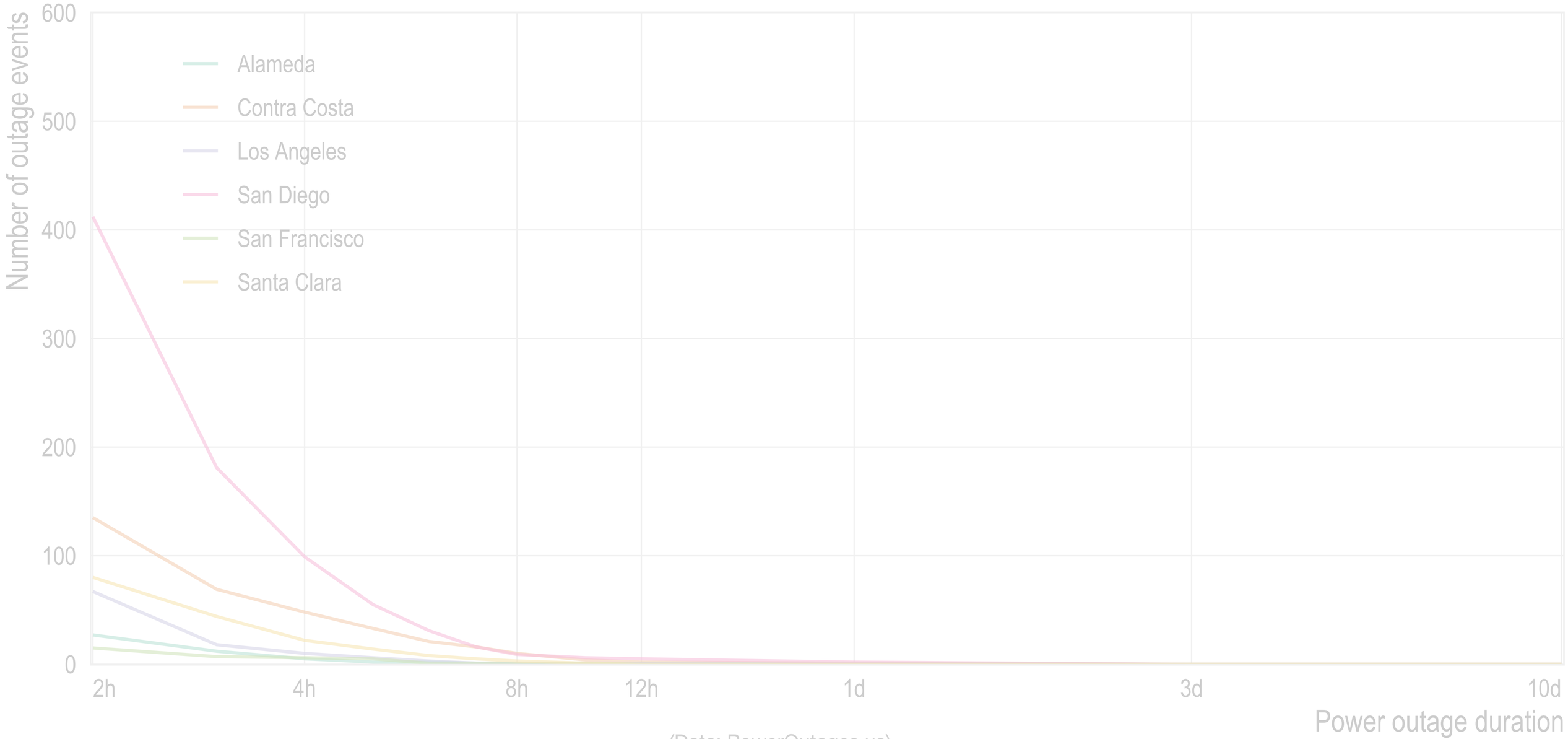


Four Questions

1. How frequent are *medically-relevant* power outages?
2. Where are medically-relevant power outages occurring?
3. Where are medically-vulnerable populations (in relation to where outages are occurring)?
4. What are the county-level characteristics associated with medically-relevant power outages?

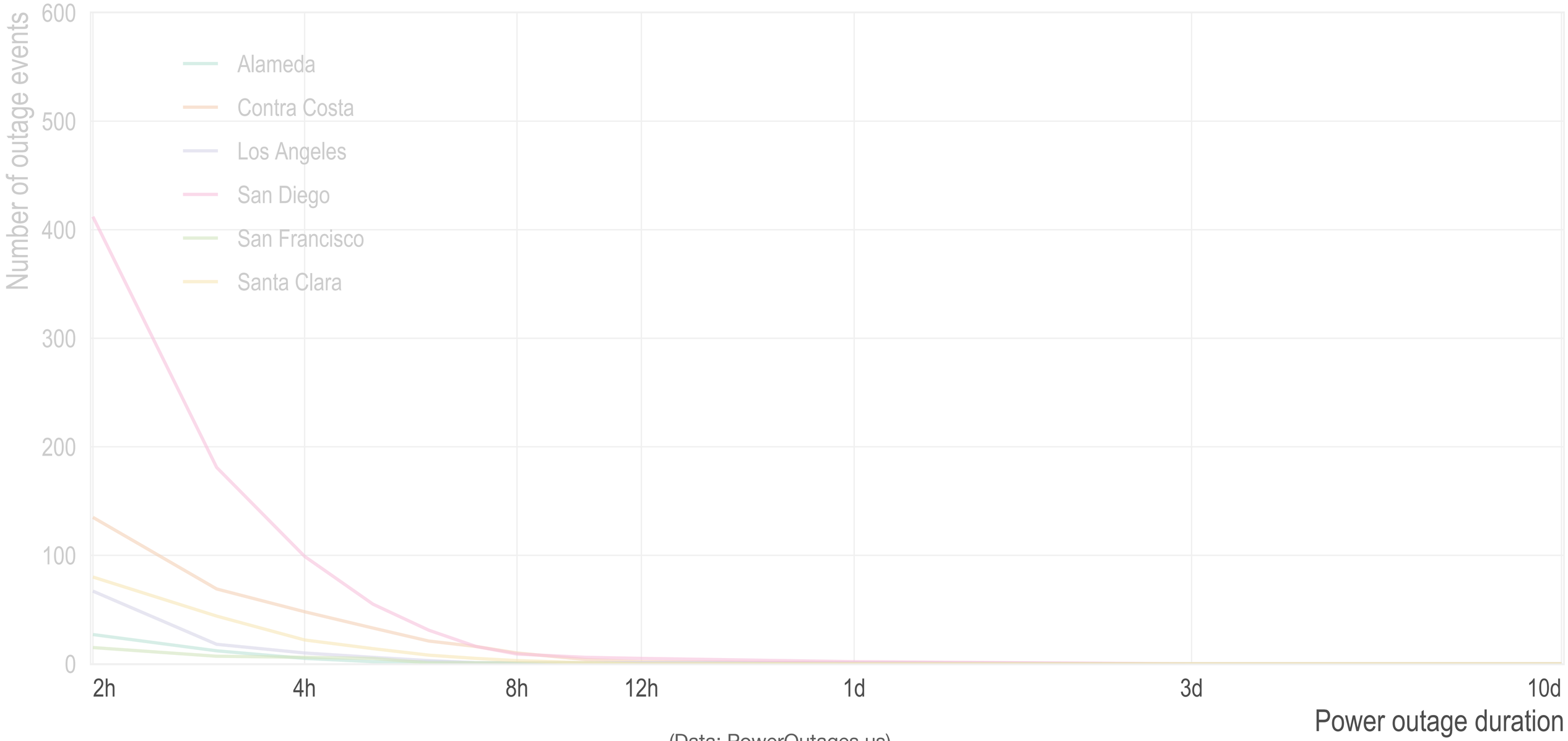


Events affecting at least 500 households



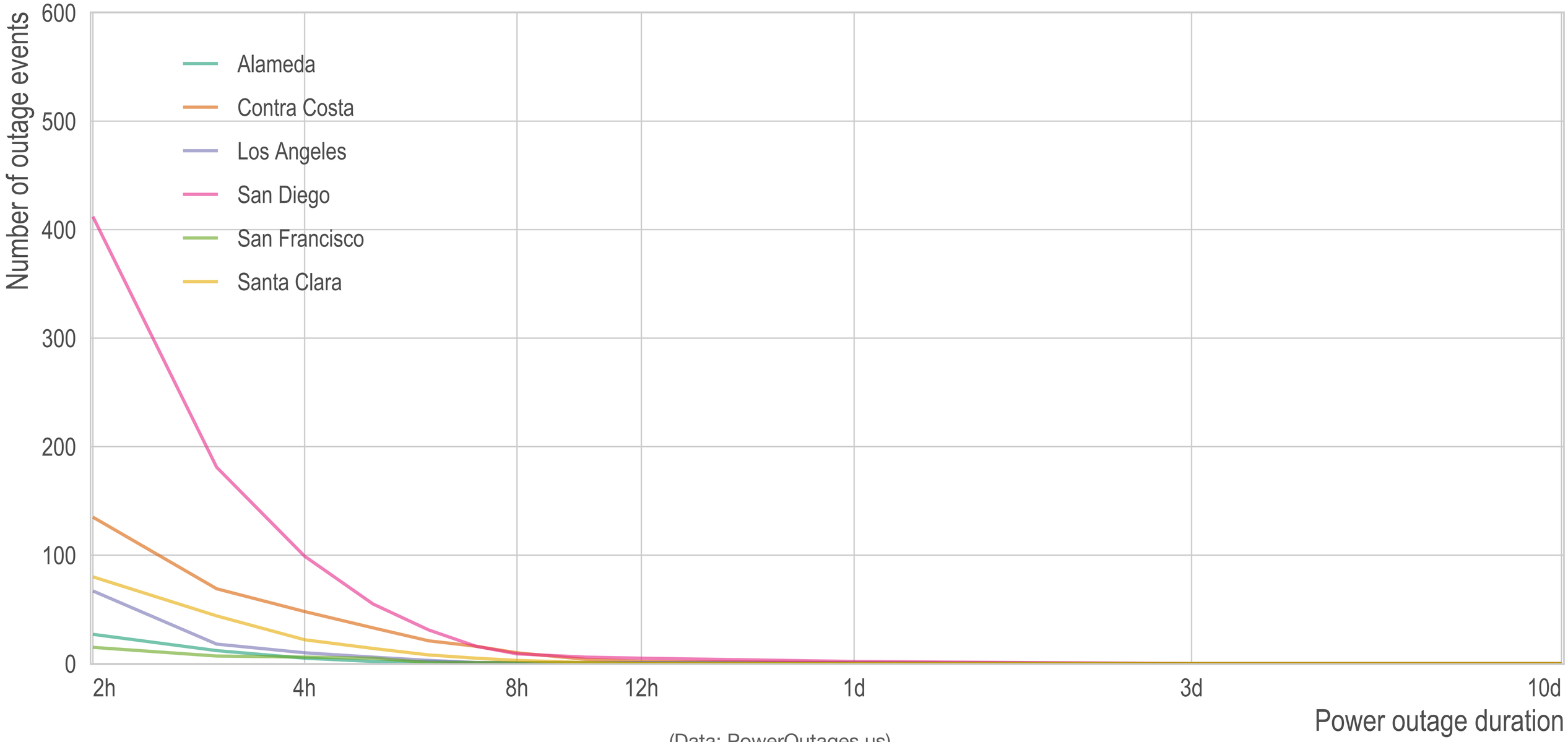
(Data: PowerOutages.us)

Lasting between 2h and 10d



(Data: PowerOutages.us)

Large events by duration



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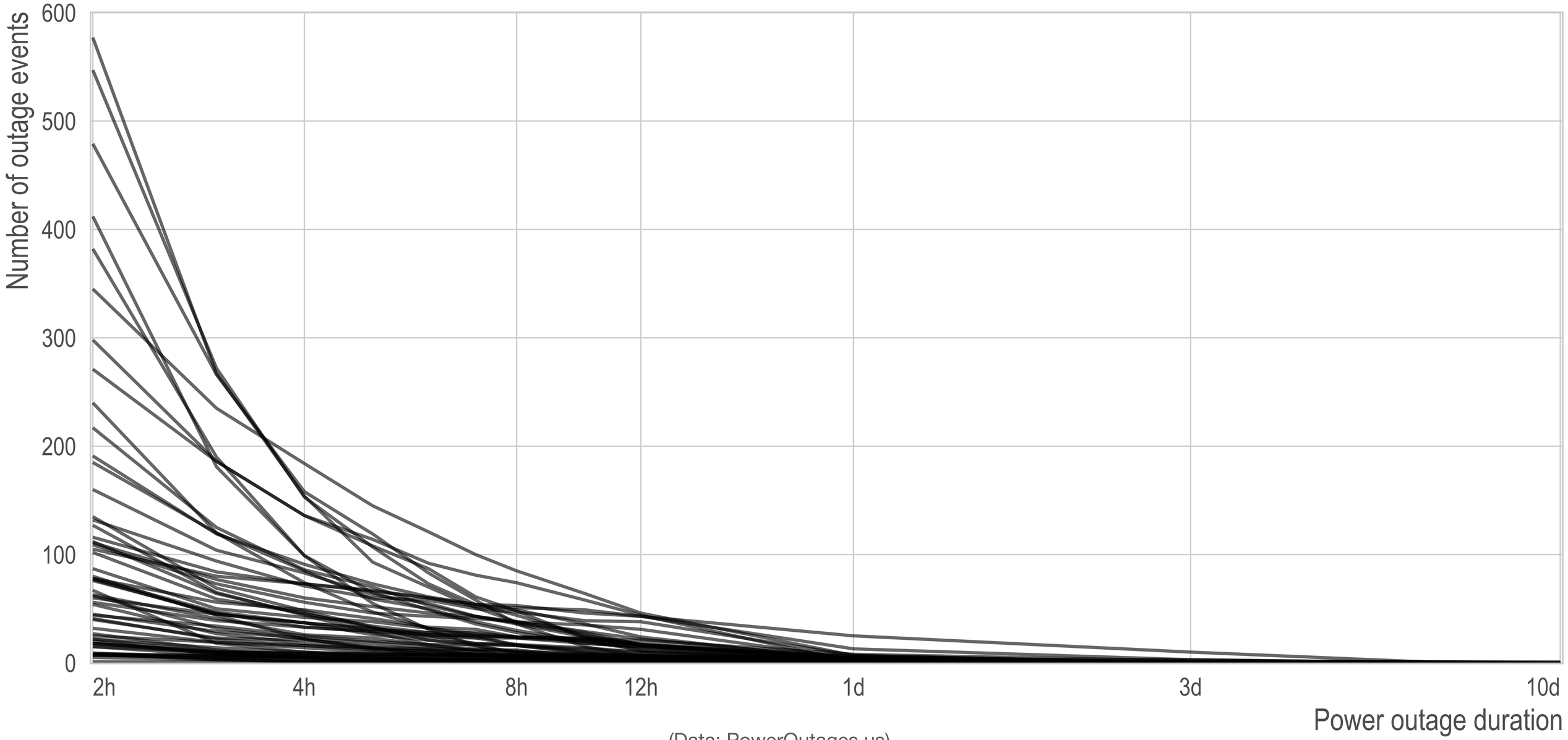
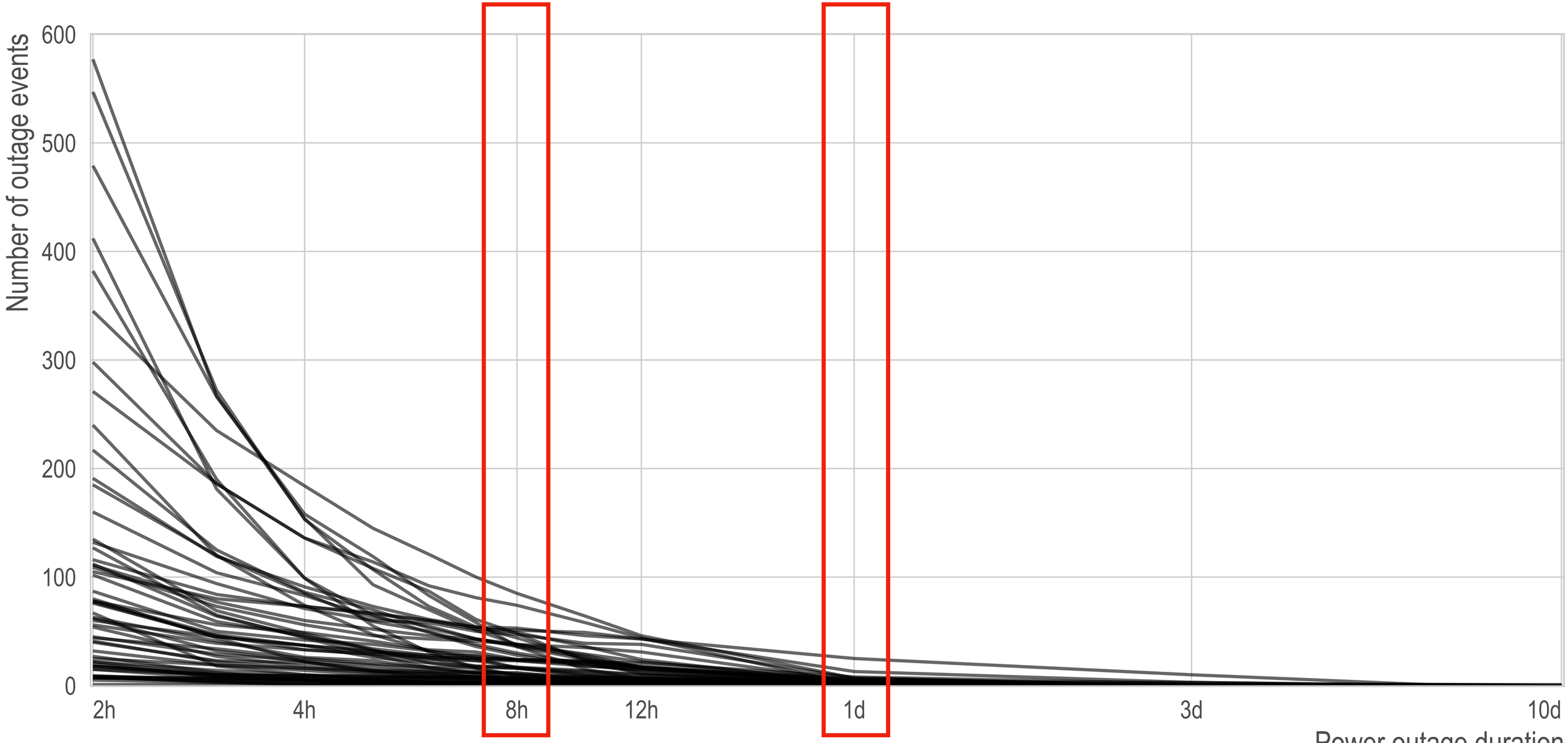
Large events by duration



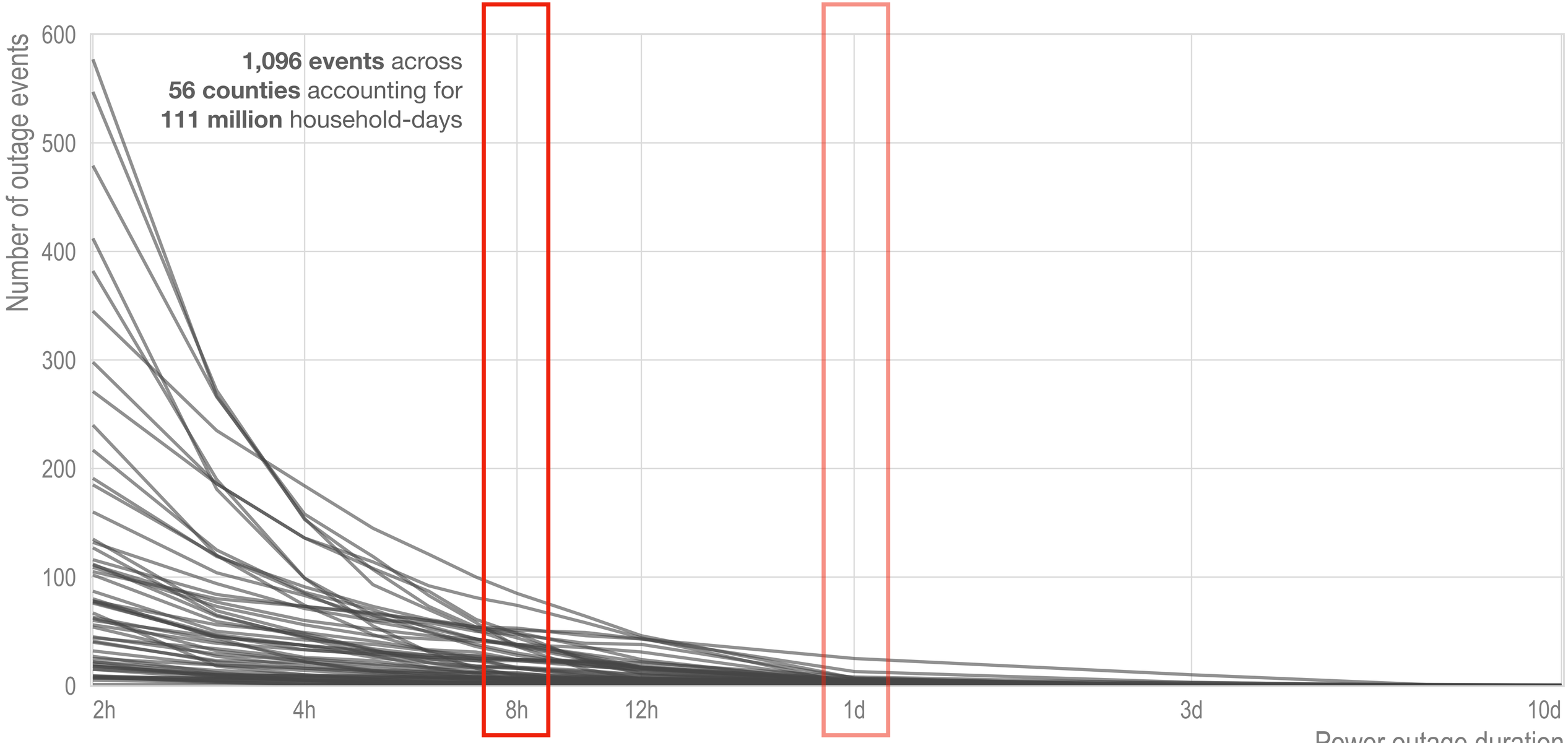
(Data: PowerOutages.us)

Medically-relevant events: 8h and 1d



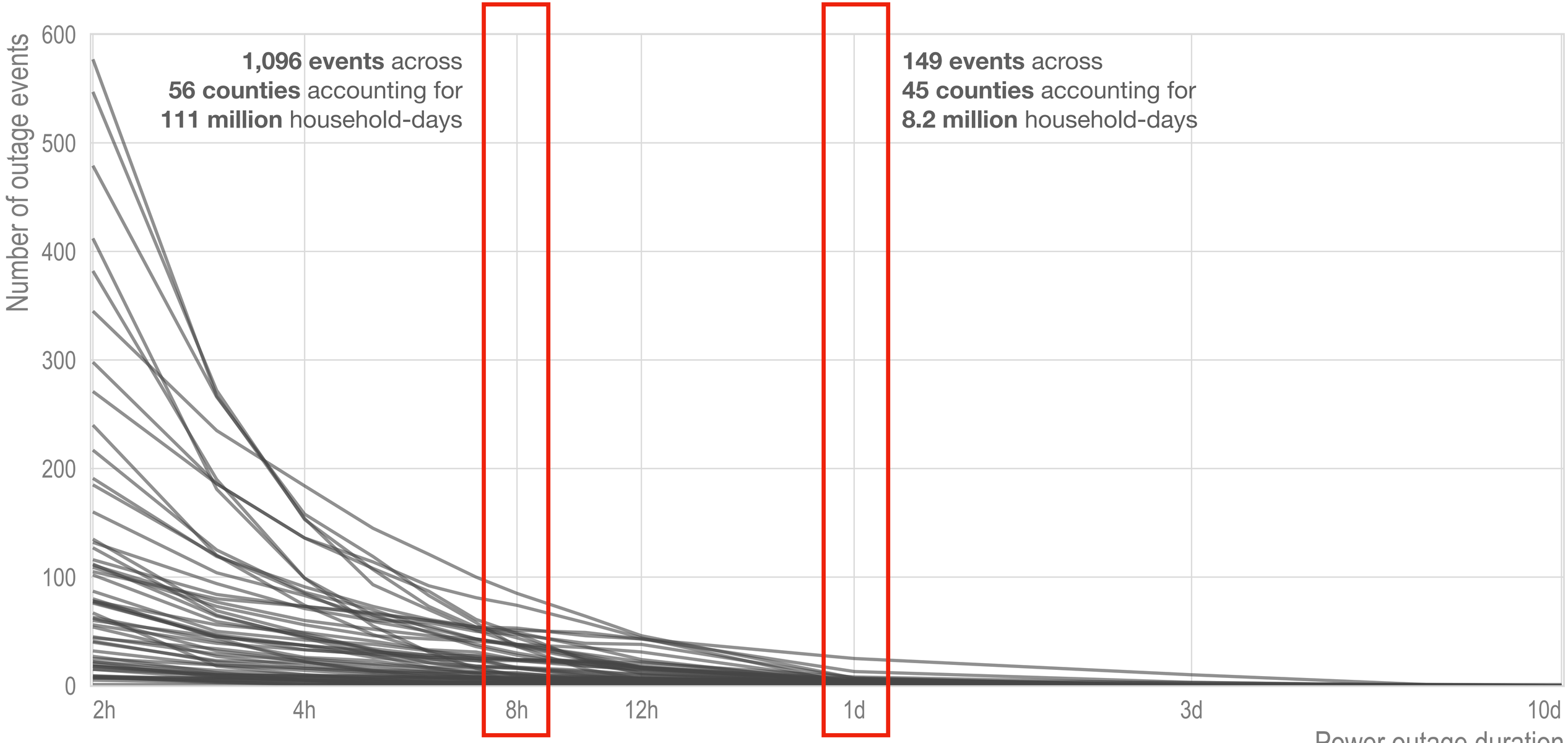
(Data: PowerOutages.us)

Nearly 1,100 8h events



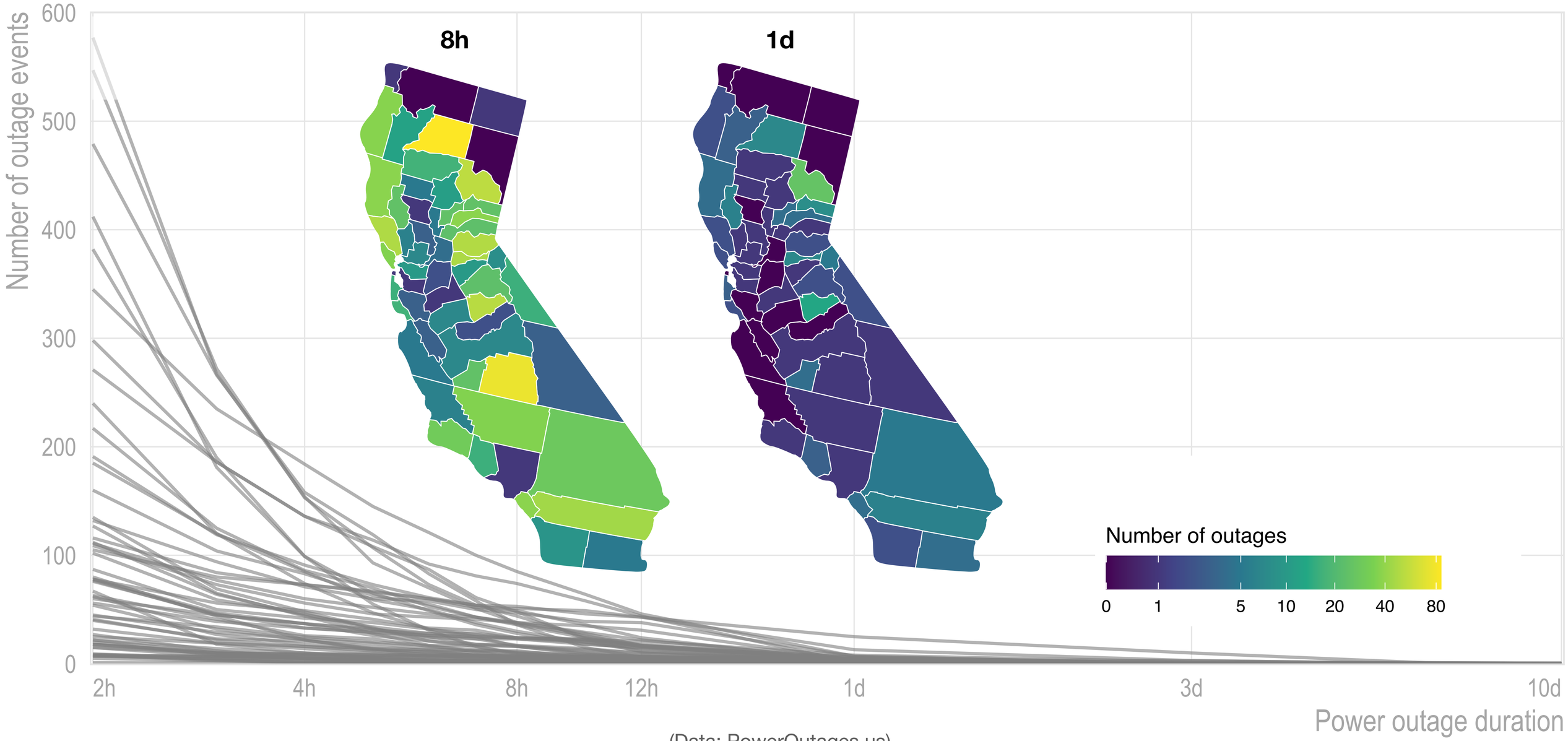
(Data: PowerOutages.us)

149 events lasting at least 1 day



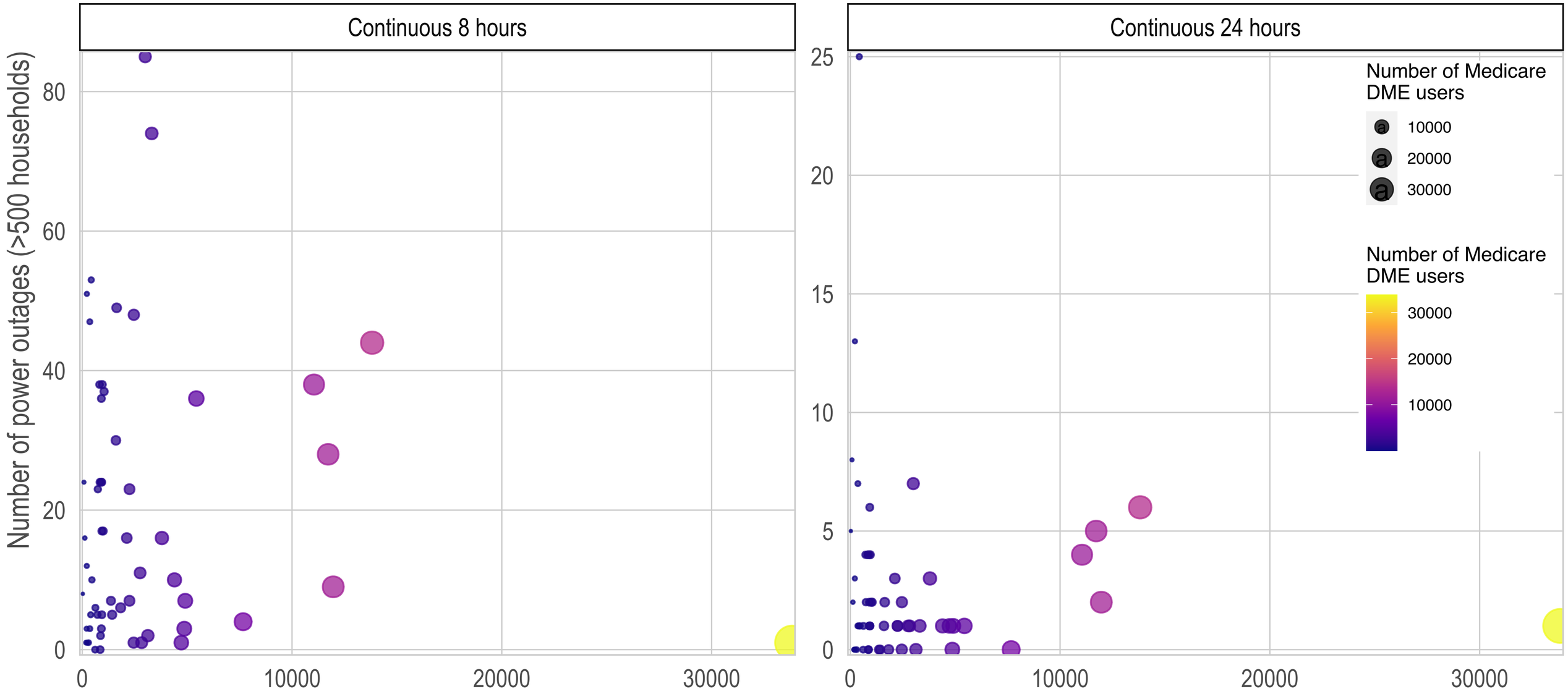
(Data: PowerOutages.us)

Spatial distribution of large events



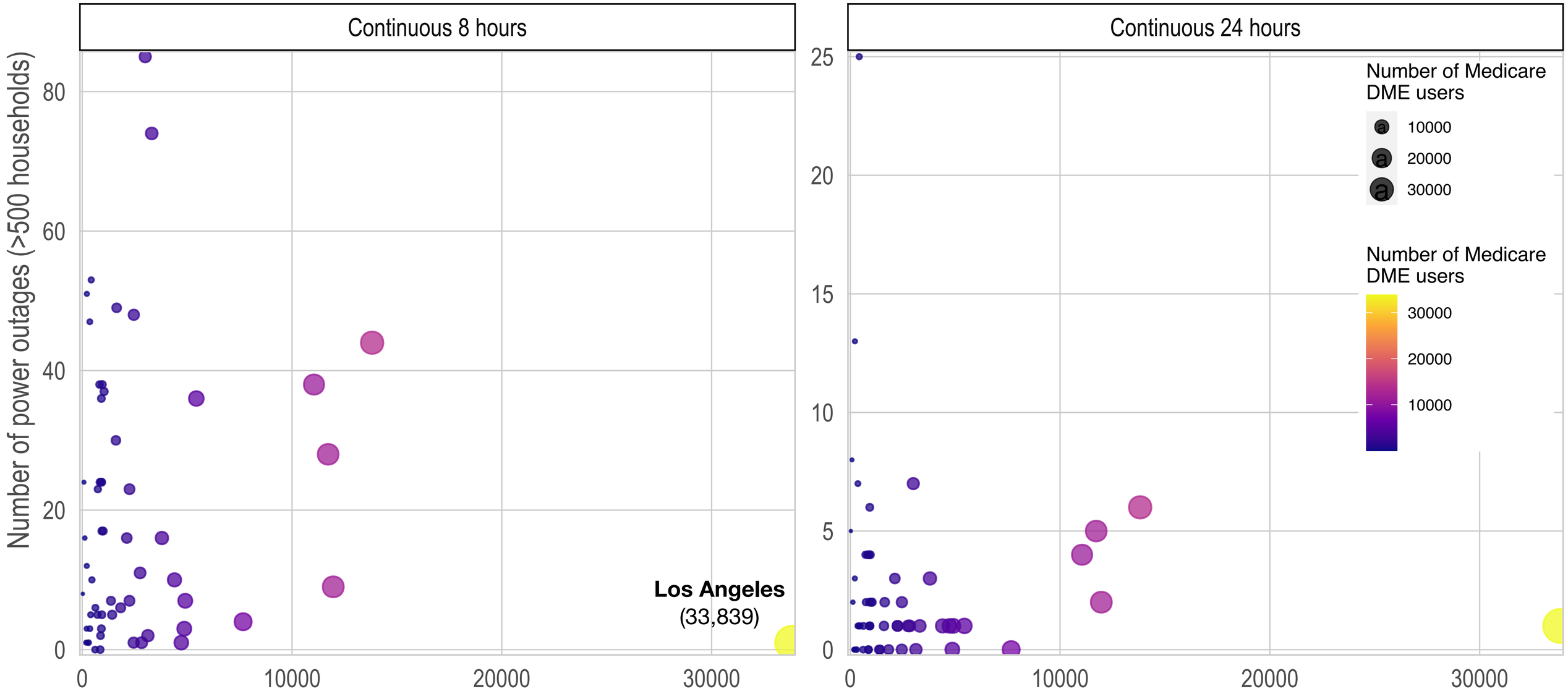
(Data: PowerOutages.us)

Highly vulnerable populations



(Data: PowerOutages.us and HHS emPOWER)

Highly vulnerable populations



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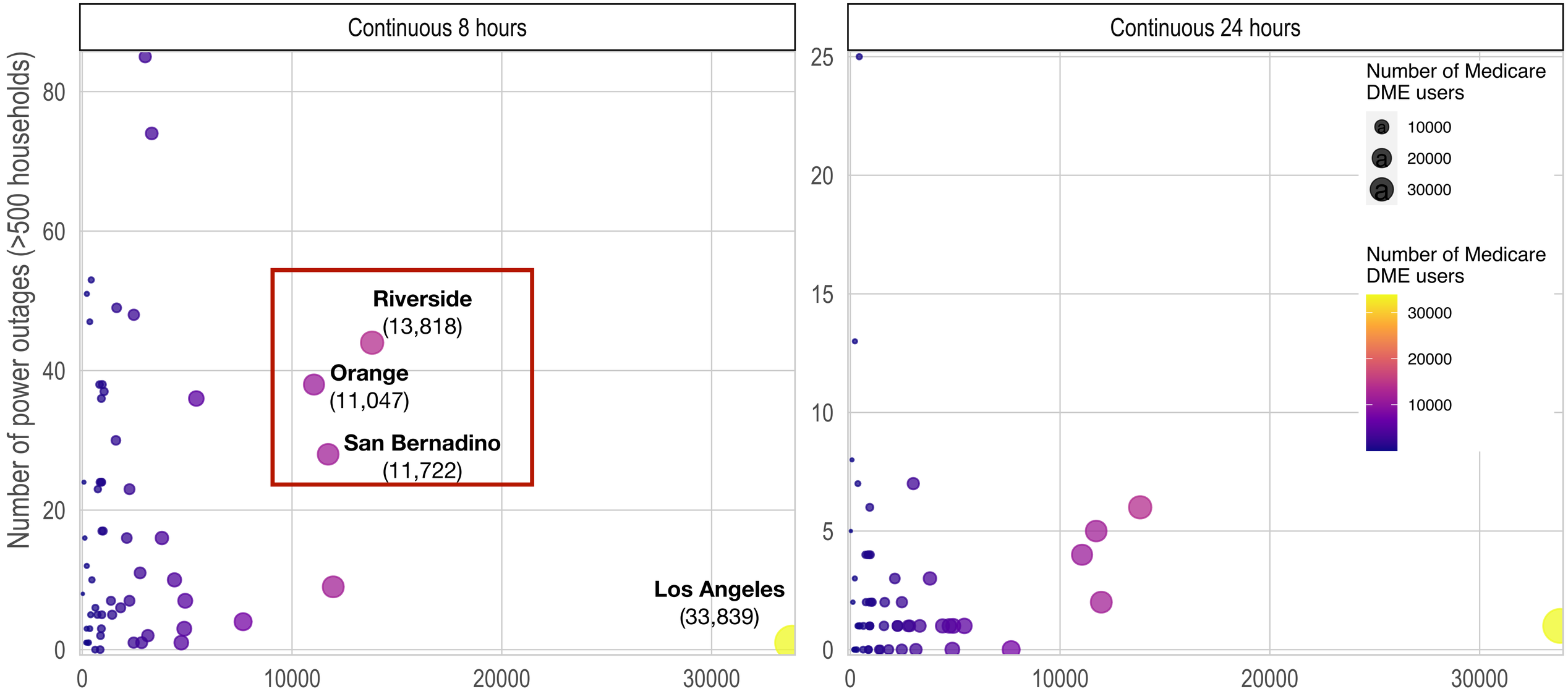
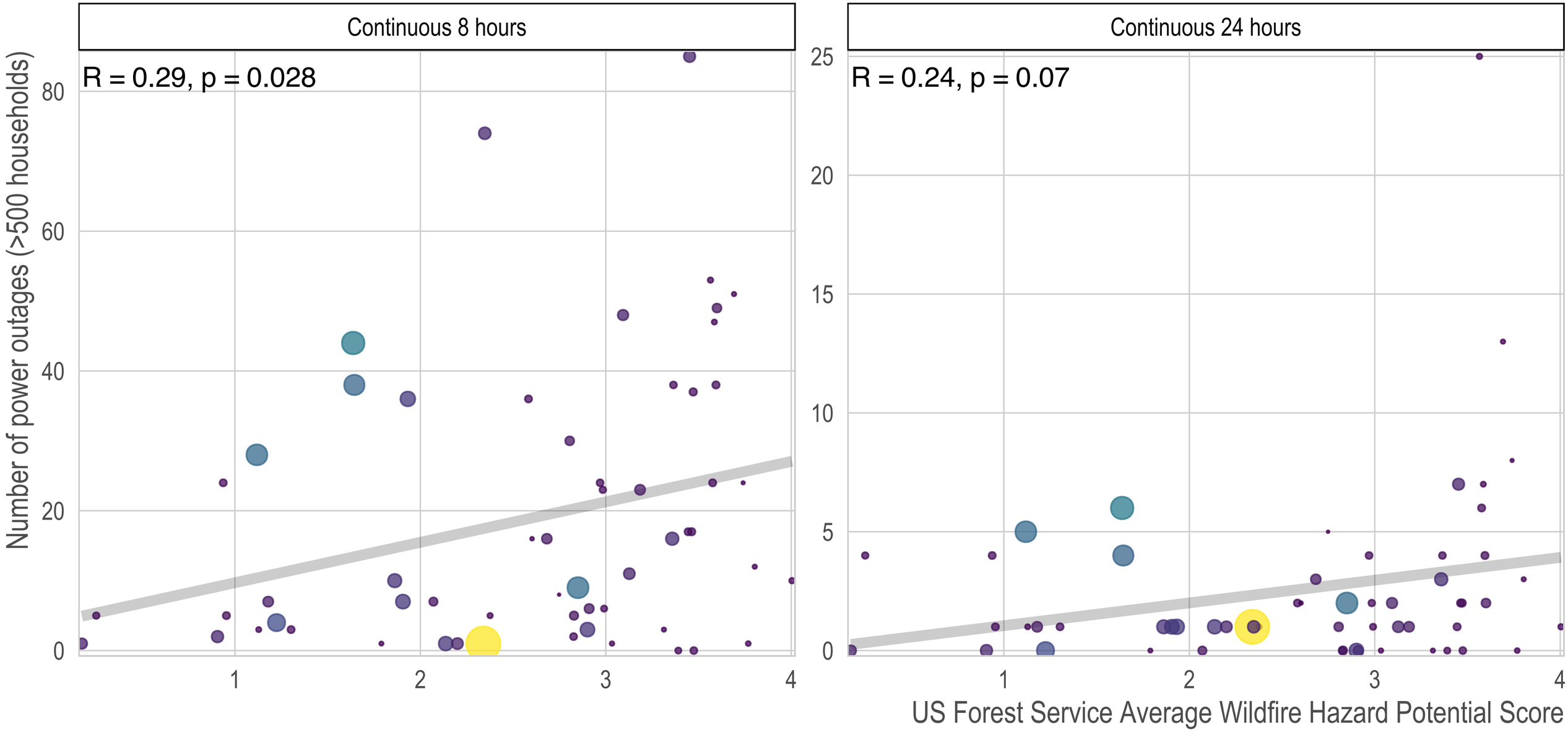
Highly vulnerable populations

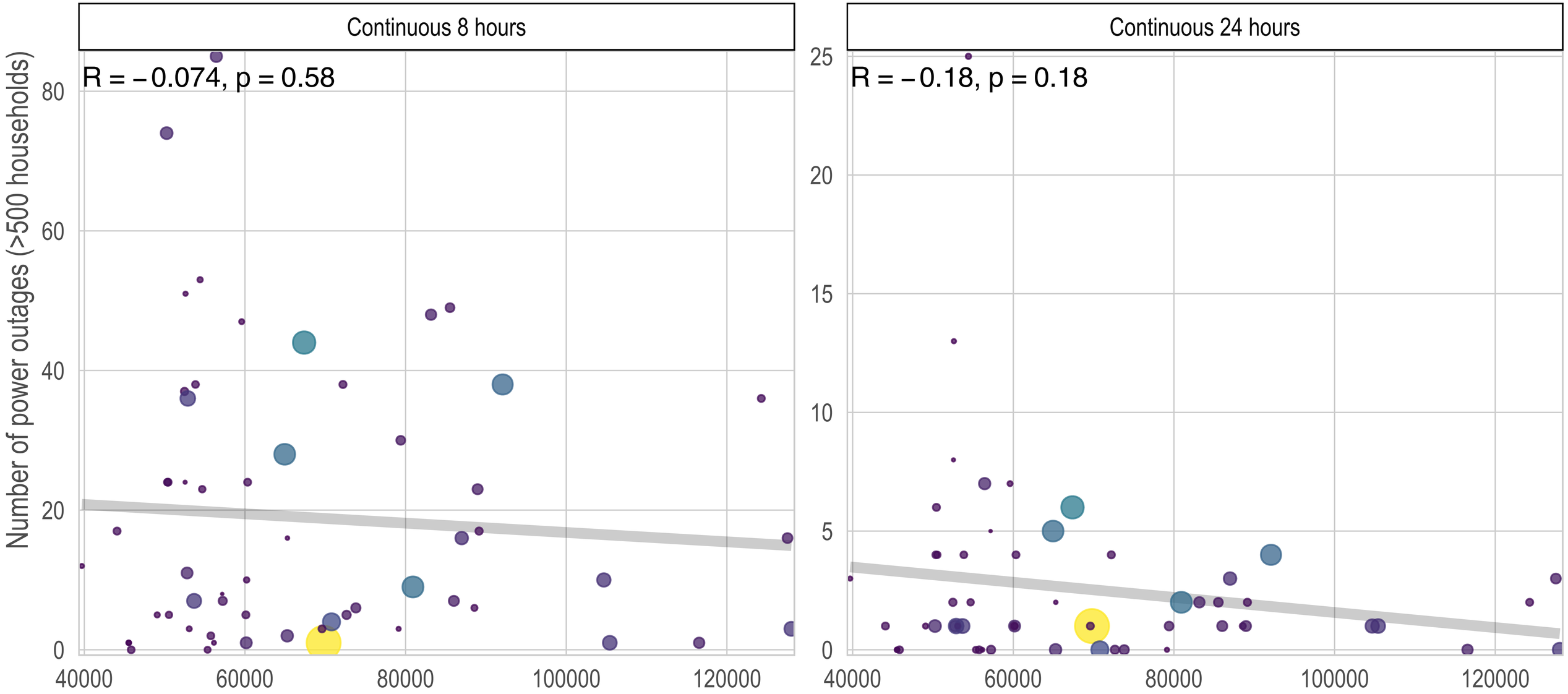


(Data: PowerOutages.us and HHS emPOWER)

Correlated with wildfire potential

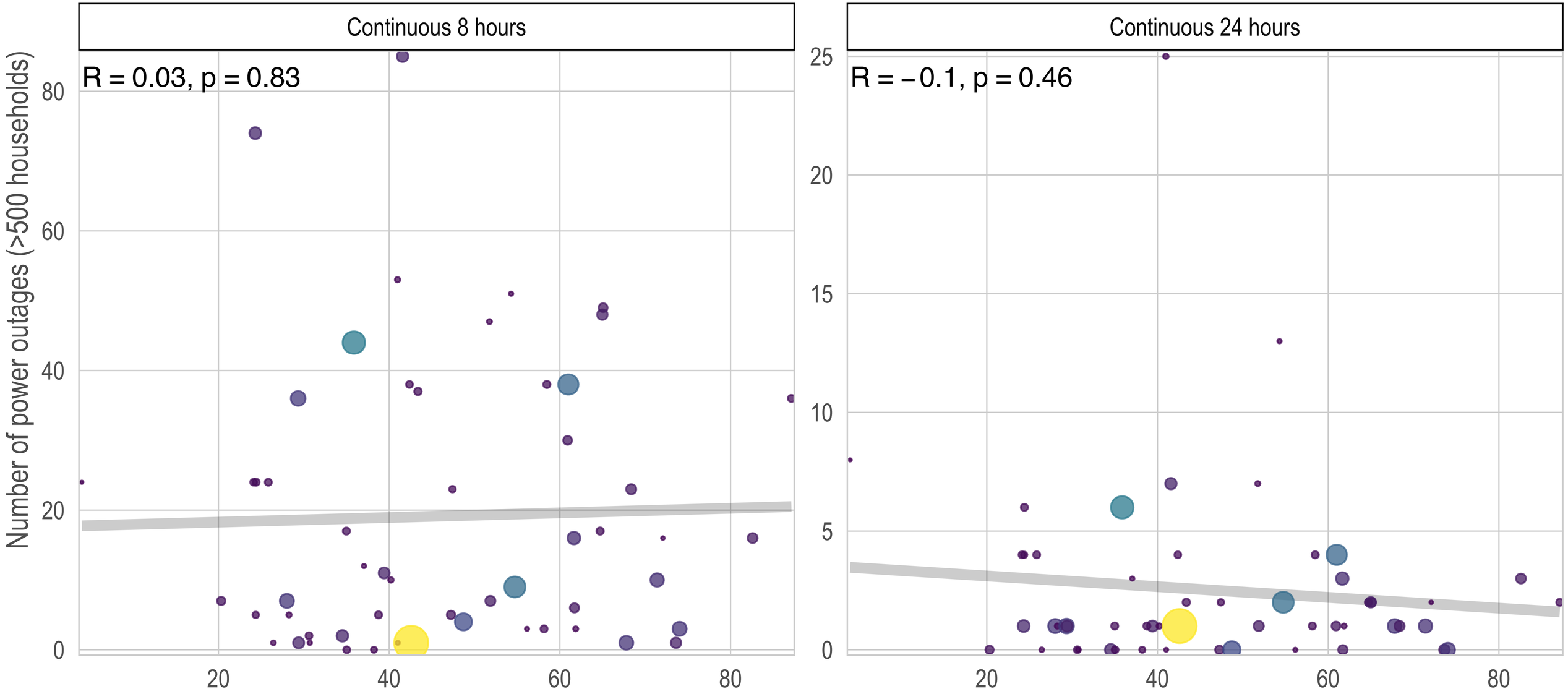


Not correlated with income



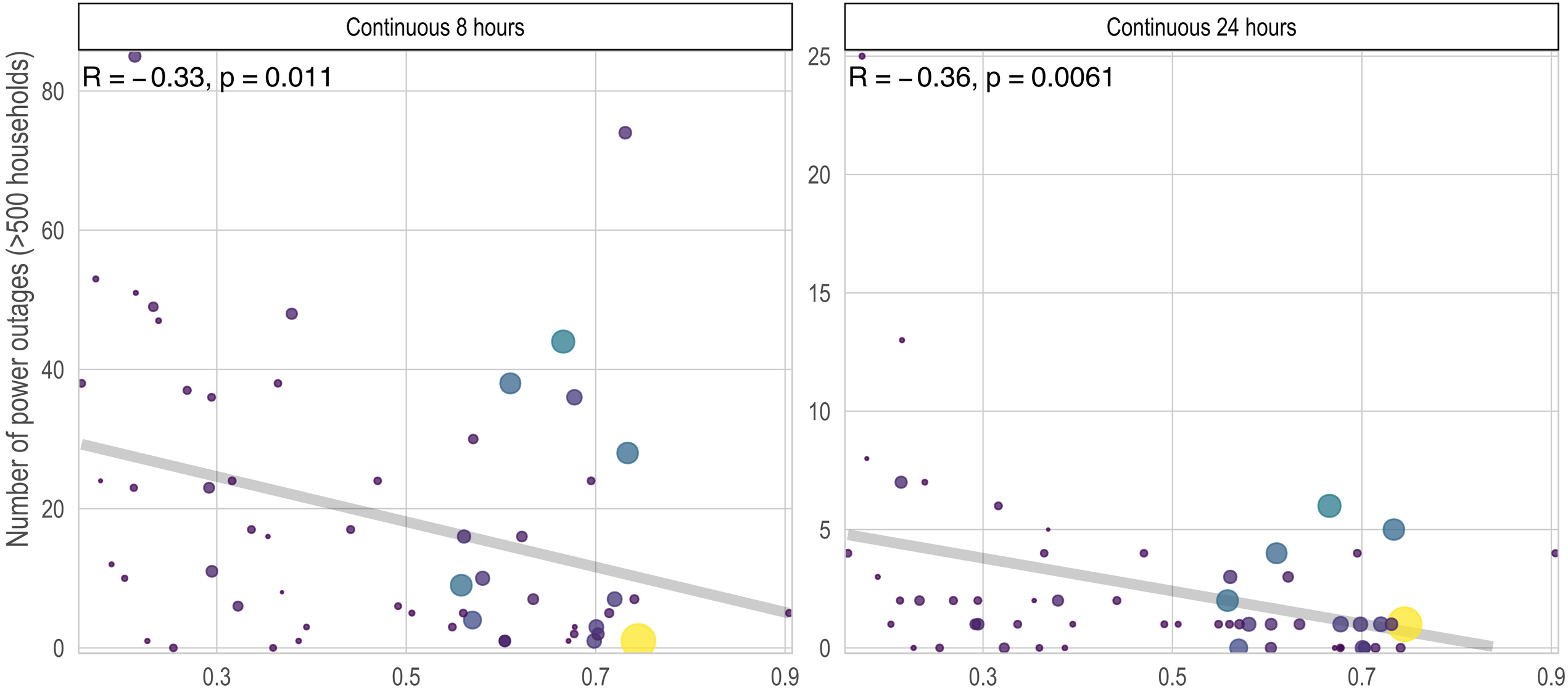
(Data: PowerOutages.us and HHS emPOWER)

Not correlated with social vulnerability



(Data: PowerOutages.us and HHS emPOWER)

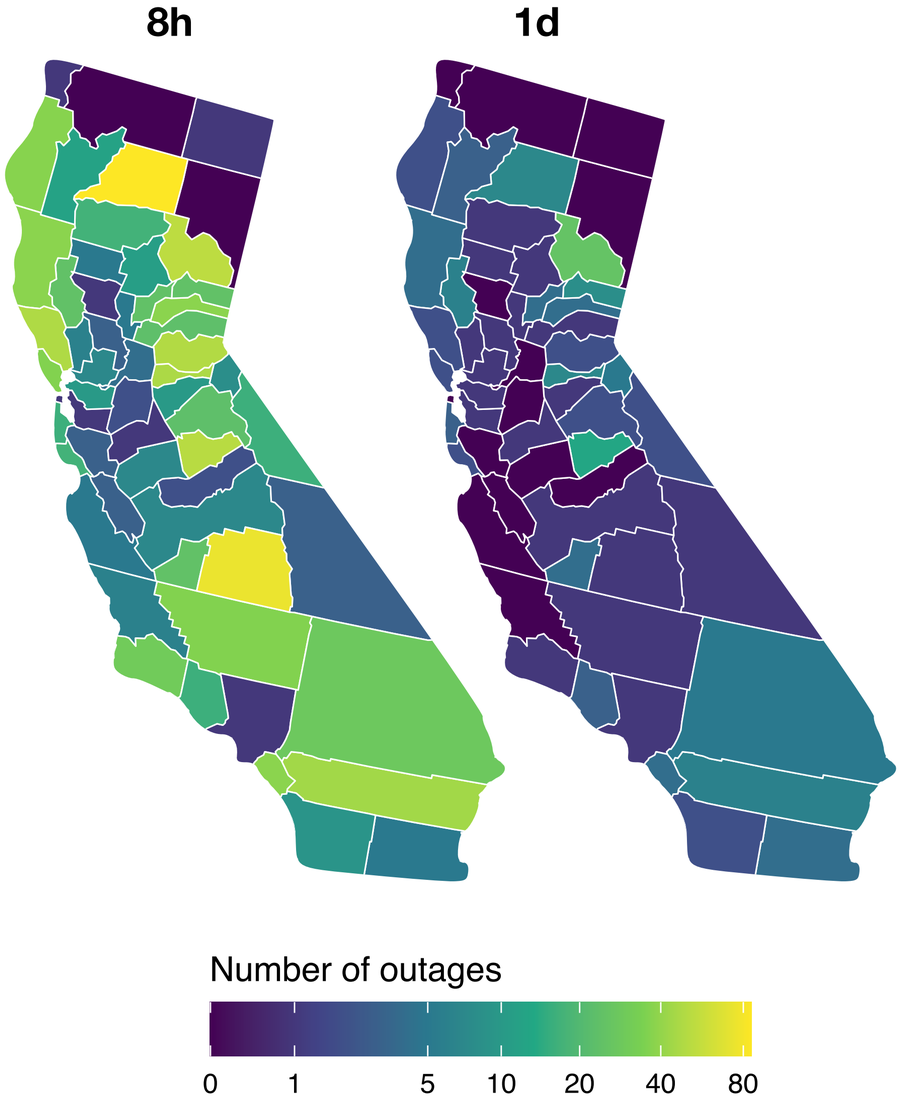
Correlated with less diverse counties



(Data: PowerOutages.us and HHS emPOWER)

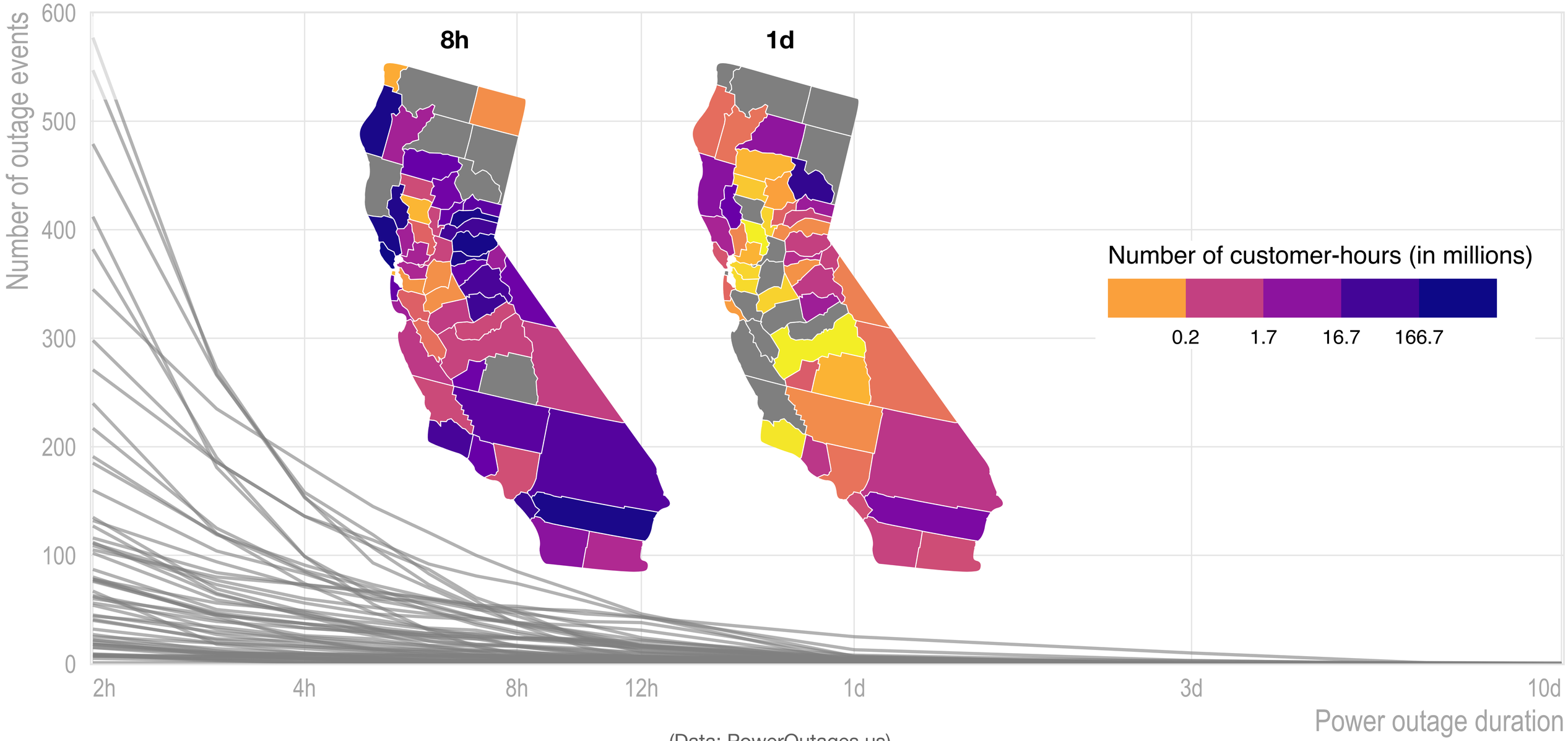
Next Steps

- Sub-county level analyses
- Hospitalization and mobility data
- Creating a dashboard with historic and near-real time data
- Shelter and hospital locations
- Long-term care facilities
- Evacuation notices and mobility



Additional Slides

Distribution of households impacted



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