



Transmission Planning Resilience Analysis

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Critical Infrastructure Stakeholder Oversight
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Background

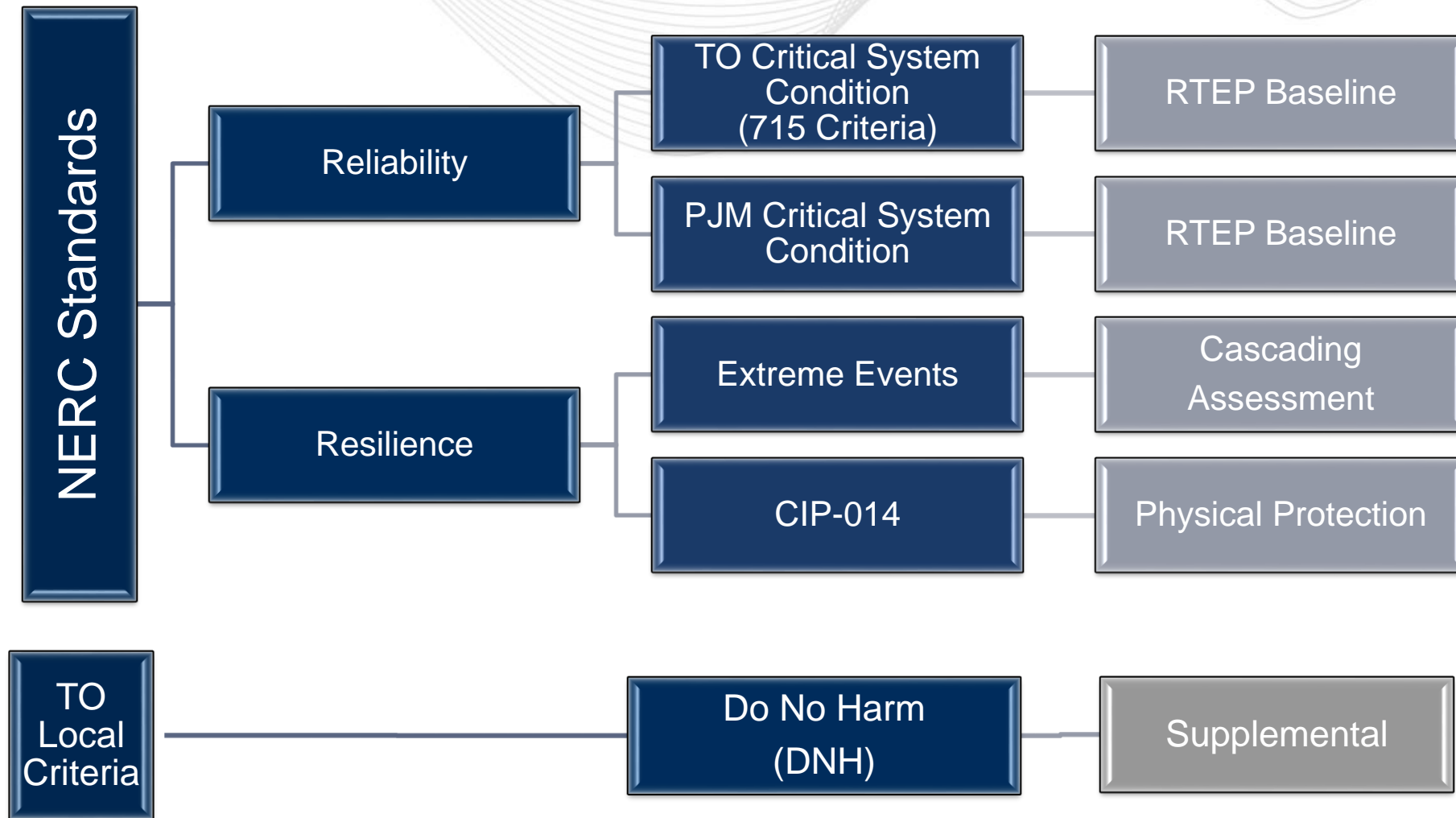
Planning resilience progress

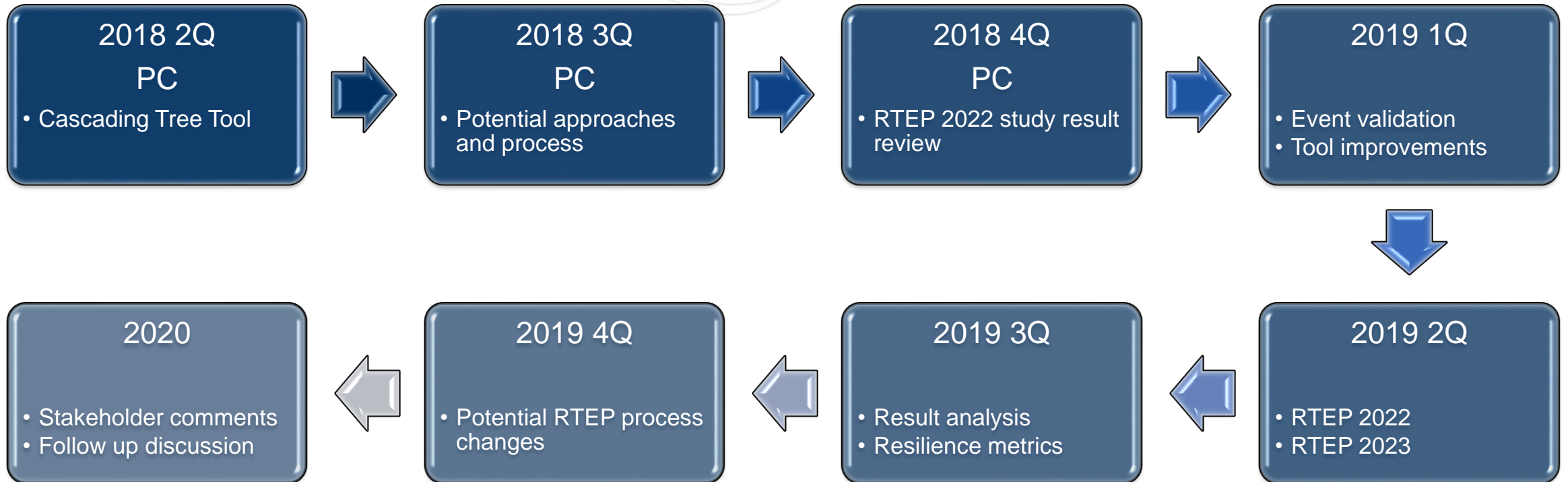
Resilience RTEP integration approaches

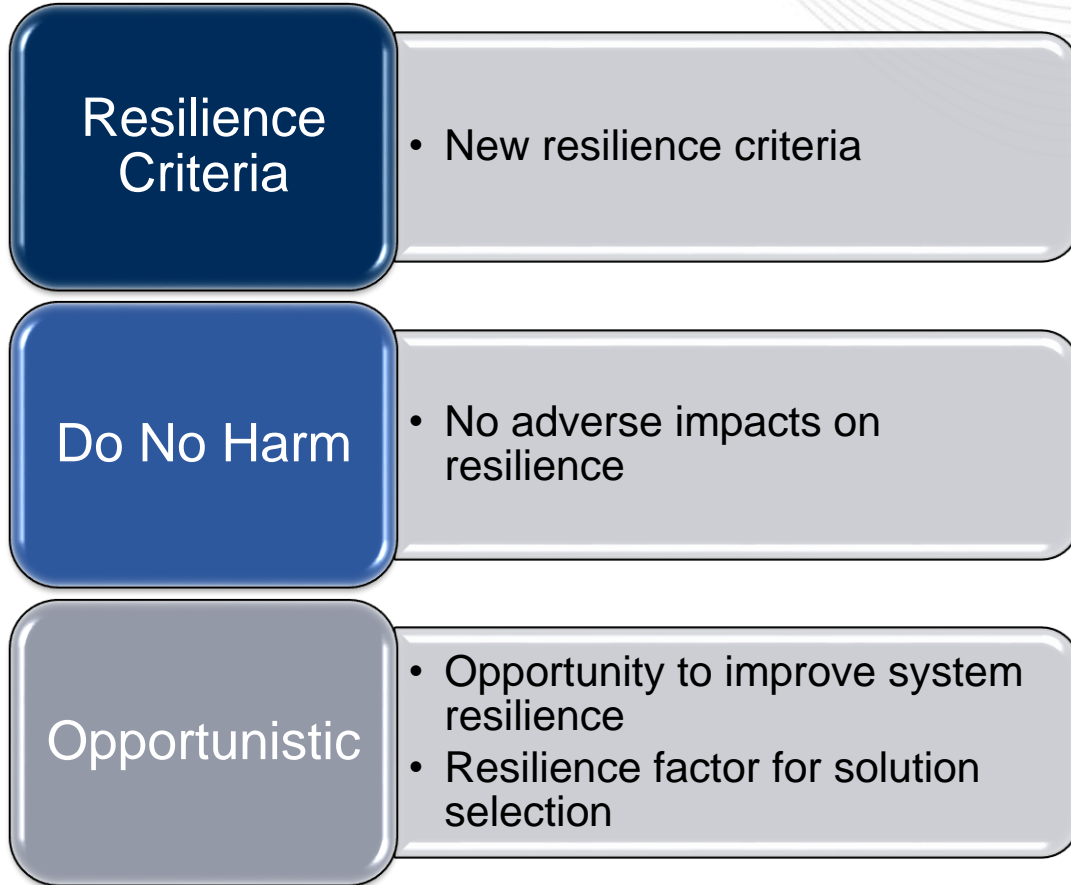
Resilience analysis tool

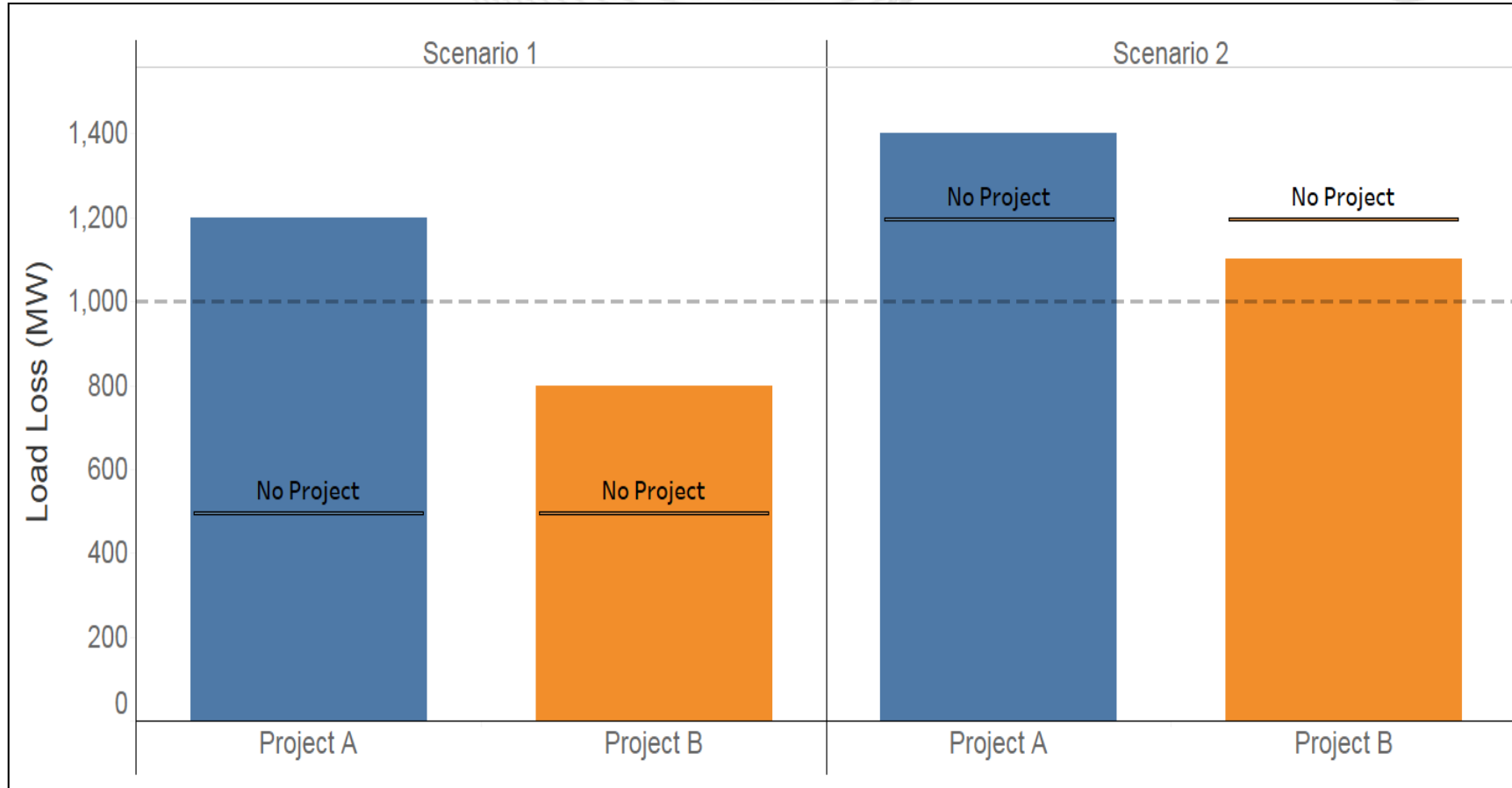
RTEP resilience study

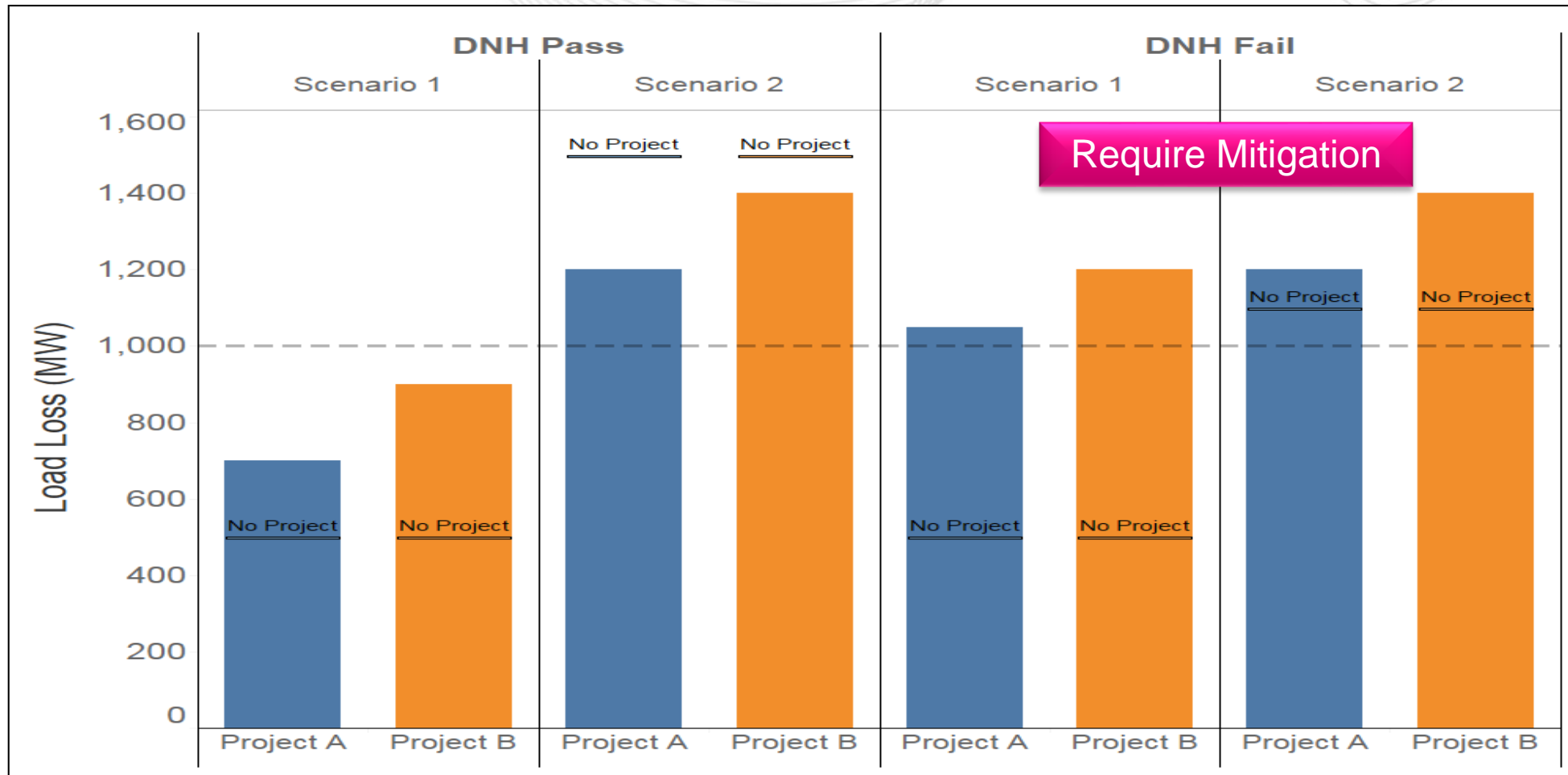
Next steps

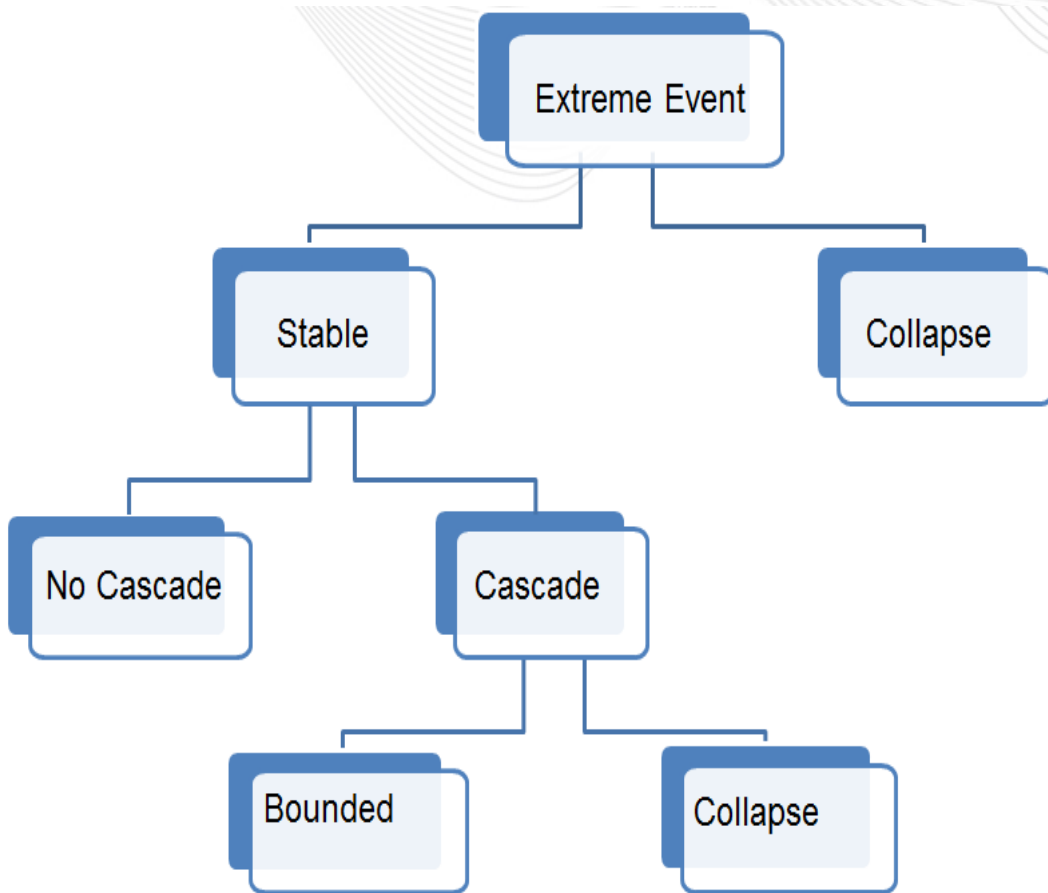












Cascading Probability

- $\sum P(\text{Cascading Paths})$

Load Loss

- $\frac{\sum P(\text{Path}_i) * \text{Loss}_i}{\text{Total Cascading Probability}}$

Repeat Offender

- Frequency of cascading events

Developed by Emanuel Bernabeu and Yang Chen (PJM Applied Innovation Department)

Contingency

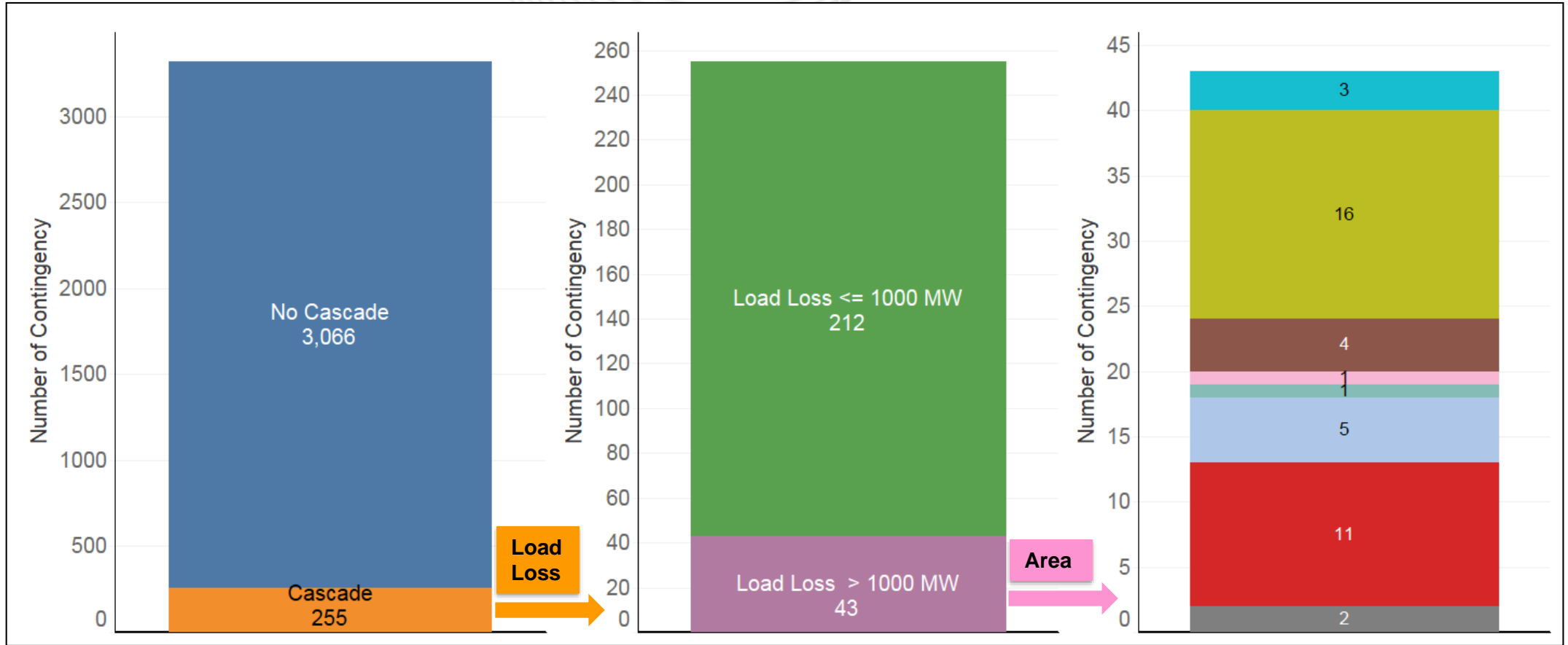
- CIP 14
- Extreme Contingency

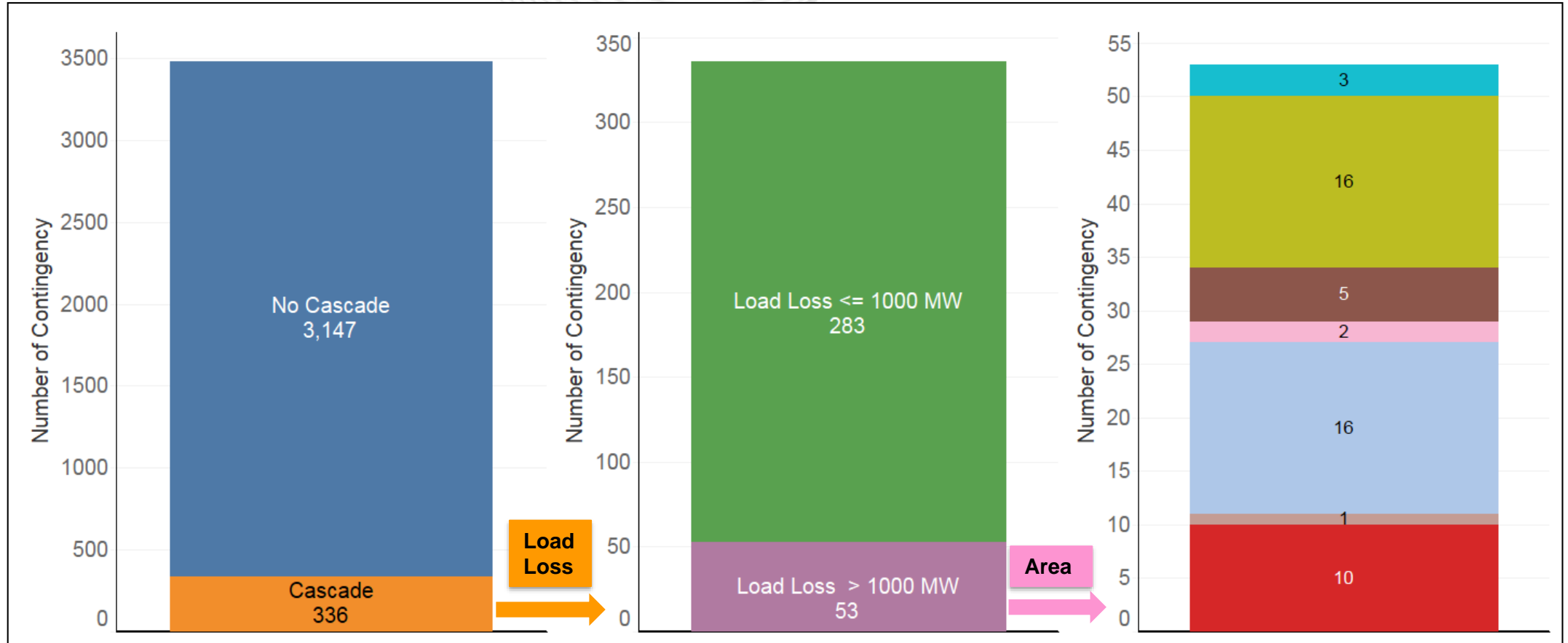
Case

- RTEP 2022
- RTEP 2023

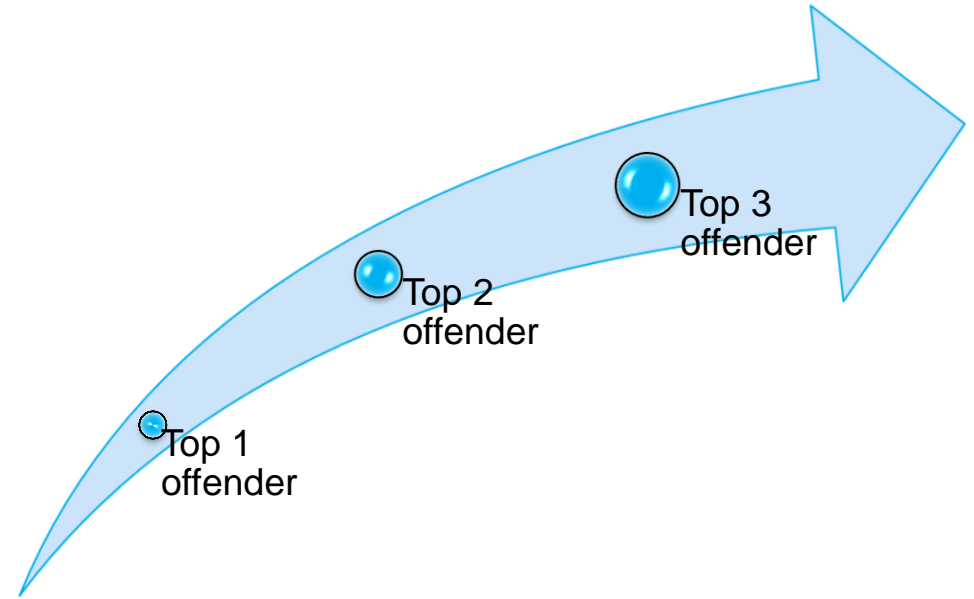
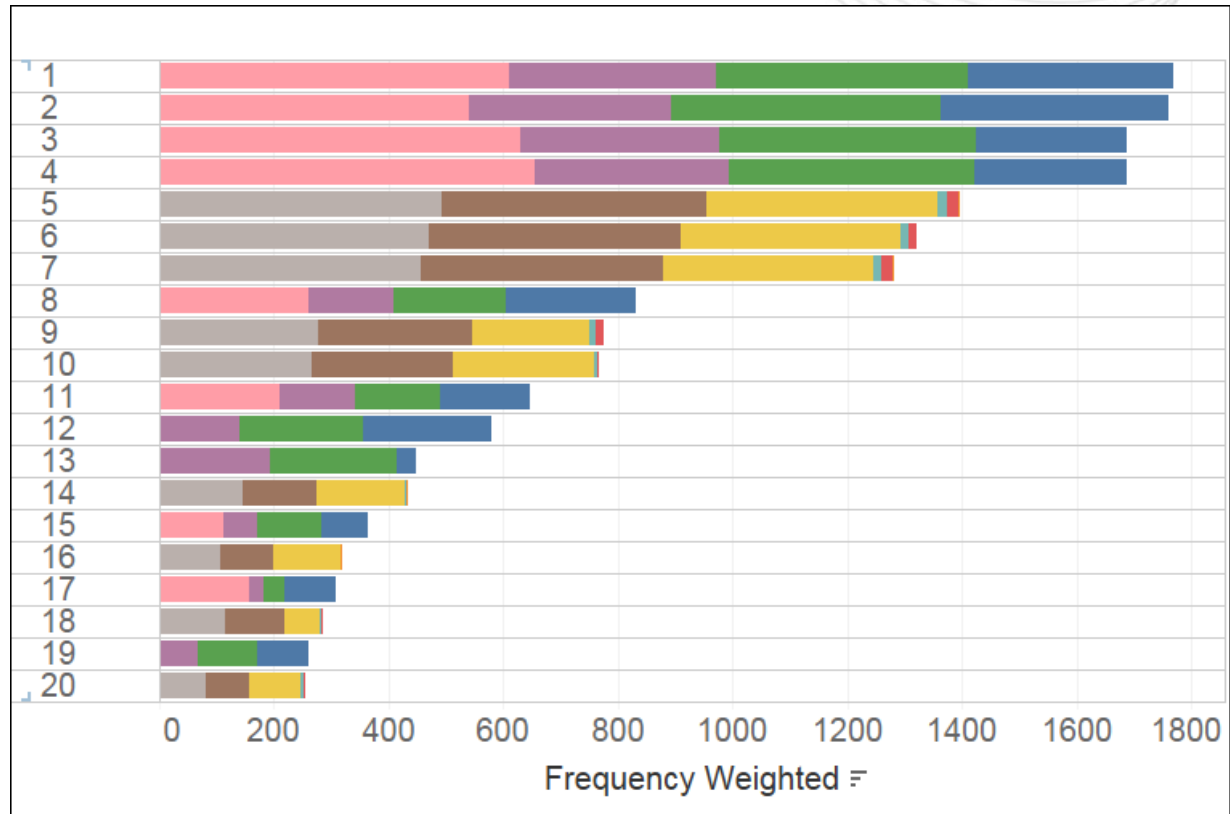
Resilience Metrics

- Cascading Probability
- Load Loss
- Repeat Offender





Top Offenders



Analytical tool improvement

Stakeholder discussion

Resilience Do No Harm study