RIC 2004
Grid Stability / Next Steps
Session W4

Grid Stability
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- Major Grid Outage in Northeast
- 62,000 Megawatts Lost
- International Task Force
- 9 U.S. Nuclear Plants Trip in Response to Grid Conditions

Joint Task Force

Three Working Groups

- Electric System Working Group
- Nuclear Working Group
- Security Working Group

Roles and Responsibilities

NRC – Federal agency that regulates civilian uses of nuclear materials.

FERC – Federal agency that regulates transmission and wholesale sales of electricity.

NERC – Non-government entity that develops transmission system operating standards and monitors compliance, but has no enforcement authority.

Roles and Responsibilities

Transmission System Owners – companies that own transmission assets, finance capital improvements

Control Area Operators – balance generation and load, comply with NERC standards (about 140 in U.S.)

Reliability Coordinators – provide reliability oversight for the CAOs over a wide region (18 in North America)

Independent System Operators – manage the operation of electricity markets, comply with FERC regulations

NRC General Design Criteria 17

Offsite Power shall:

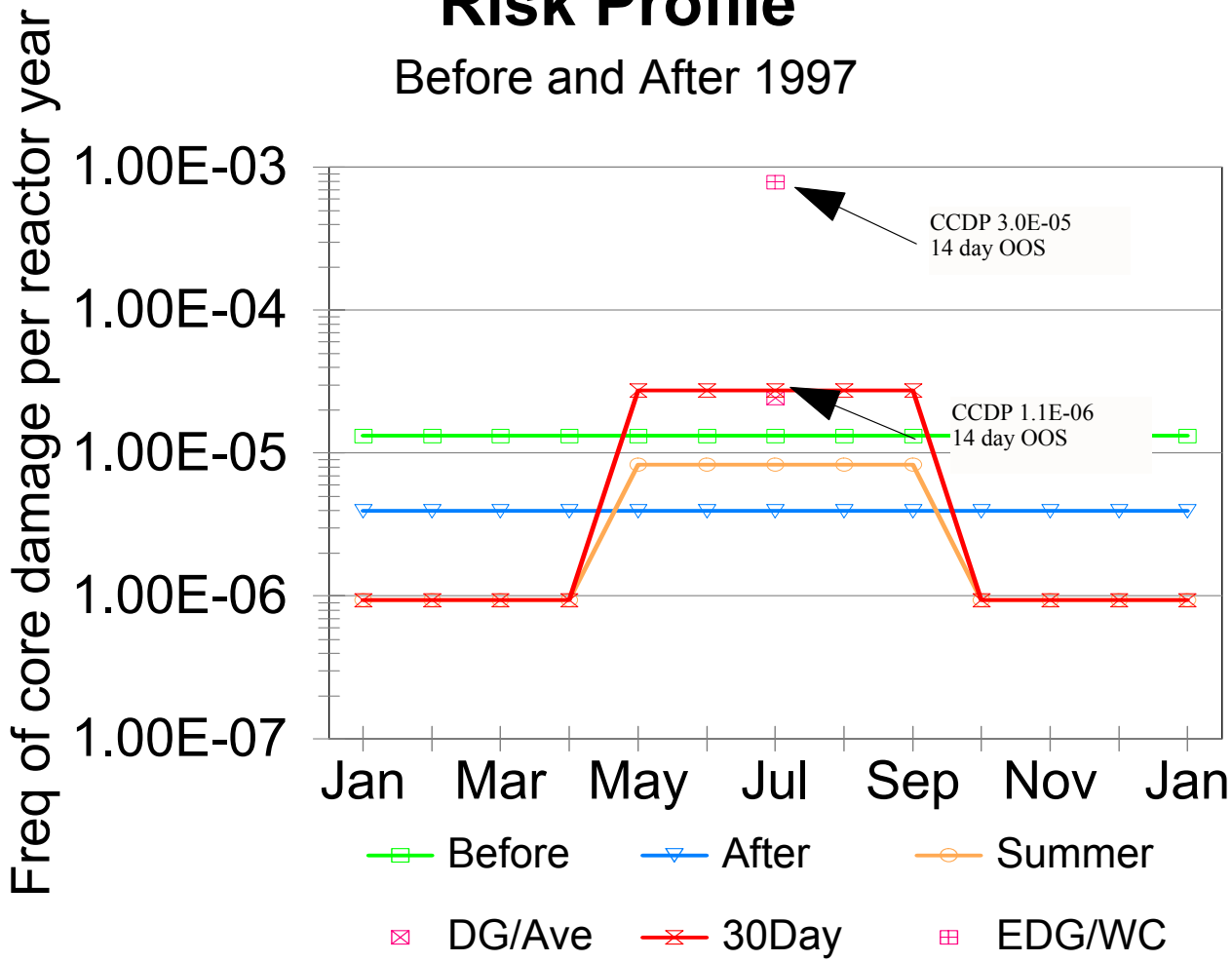
- Provide sufficient capacity and capability
- Supplied by 2 physically independent circuits
- One circuit available within a few seconds
- Minimize probability of losing electric power from remaining supplies coincident with loss of one supply

Loss of All AC Power
10 CFR 50.63

- Withstand and recover from a Station Blackout
- Coping duration depends on:
  - Expected frequency of Loss of Offsite Power
  - Reliability of Emergency Diesel Generators
  - Probable time to restore offsite power
  - Redundancy of onsite emergency sources

Risk Profile

Before and After 1997



Ref: NUREG 1784, Operating Experience Assessment – Effects of Grid Events on Nuclear Power Plant Performance.

Summary

- August 14th Loss of Offsite Power Event Tripped 9 Nuclear Plants
- Although the Number of LOOPs Has Decreased, the Length Has Increased
- Plant Maintenance Should Include Impact of Grid Condition