Lifeline Interdependencies

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Panel:
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Michael Germerraad – Resilience Planner, Association of Bay Area Governments

Tom O’Rourke – Dist. M. ASCE, NAE, UK Royal Academy of Engineering, Past EERI president, Professor, Cornell University
Lifelines Support Social/Economic Needs

Source: NIST CRPG 2015
Lifelines

Aftermath of an earthquake in Japan, 2004
Photograph by Kimimasa Mayama/Reuters

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Lifeline Dependencies

Interdependencies will make disaster recovery much more difficult. The earthquake will damage all systems at the same time.

To restore water service, you need electricity

To restore electric service, you need to reopen roads

To reopen roads, you need to restore fuel supplies
Cascading Effects

Power System INTERNAL
Cascading Failure (2003 NE Blackout)

Source: NIST CRPG 2015
Cascading Effects

Power System
EXTERNAL Cascading Failure (2003 NE Blackout)

Source: NIST CRPG 2015
Avoid Cascading Effects

• Identify critical dependency relationships
• Resilience Planning
• Challenges
Thank You