



301: Risk Management

Energy and Utilities
 APPA Institute for Facilities Management
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AIA Information


Credit(s) earned on completion of this course will be reported to American Institute of Architects (AIA) Continuing Education Session (CES) for AIA members.

Certificates of Completion for both AIA members and non-AIA members are available upon request.

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.





Course Description

The production and distribution of utilities has an inherently high element of risk. Failures in utility systems often result in damaged assets and, in rare cases, injuries to the campus community. This course provides a framework for identifying and categorizing risks in a utility environment. However, the principles are applicable to managing and minimizing risk in any setting.



[Learning Outcomes]

Learning Objective 1:
Discuss the high element of risk in the production and distribution of utilities.

Learning Objective 2:
Discuss utility failures that often result in damaged assets.

Learning Objective 3:
Learn the framework for identify and categorizing risks in a utility environment.

Learning Objective 4:
Discuss the principles that are applicable to manage and minimize risk in any setting.



[Overview]

- Provide an overview of basic risk management concepts
- Review how risk management applies to various components of Utilities and Energy Management



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[Discussion]

- Have you experienced a catastrophic failure in your career?
- What happened and what steps did you take to prevent recurrence?



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[General Concepts]

Risk

- The hazard or chance of loss
- Impact and Probability

Risk Management


- Identify risks
- Categorize and rank risks
- Mitigate risks

APPA 7

[Risk Assessment]

Types of Risk - PEAR

- People
- Environment
- Assets
- Reputation



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[Risk Assessment]

Impact Factors:

- Permanence or Restorability
- Financial
- Reputation
- Cascading

APPA 9

[Risk Assessment]

Probability Factors:

- o Geographic/Location
- o Experience
- o Knowledge/Skill Level
- o Condition of Equipment

APPA 10

[Risk Assessment]

- o Understand how your institution perceives and manages risk
- o Integrate your approach to align with institution
- o Collaborate

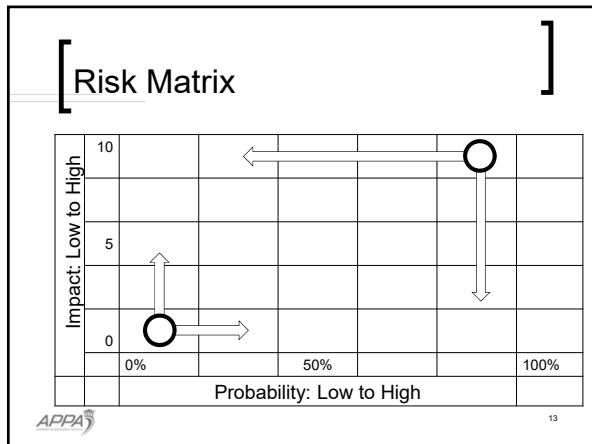
APPA 11

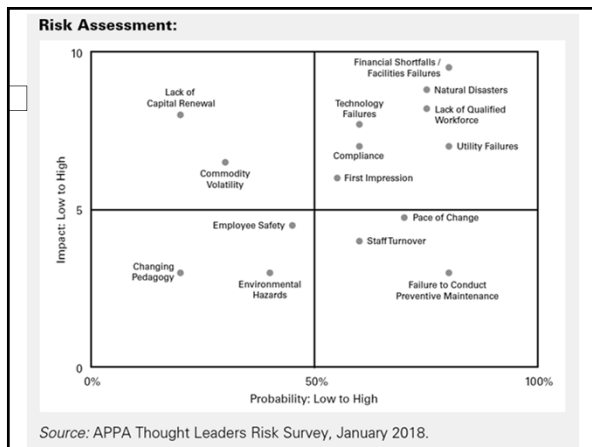
[Risk Assessment]

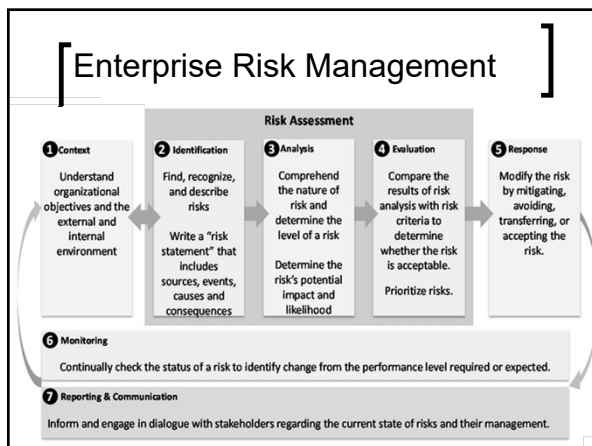
Two Common Approaches:

- o Basic Risk Matrix
 - relatively easy
 - can be “internally” developed
- o Enterprise Risk Management (ERM)
 - more complex
 - often compiled by Audit Office

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Risk Mitigation

- **Reduction** – reduce impact/probability
Replace susceptible equipment
- **Control** – minimize damage
Plan for backup housing
- **Transfer** – assign to others
Get insurance
- **Acceptance** – live with the risk
For “low impact/low probability”
- **Avoidance** – stop doing the risky activity



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Understanding Your Context

- National
- Regional
- State
- Local
- Campus

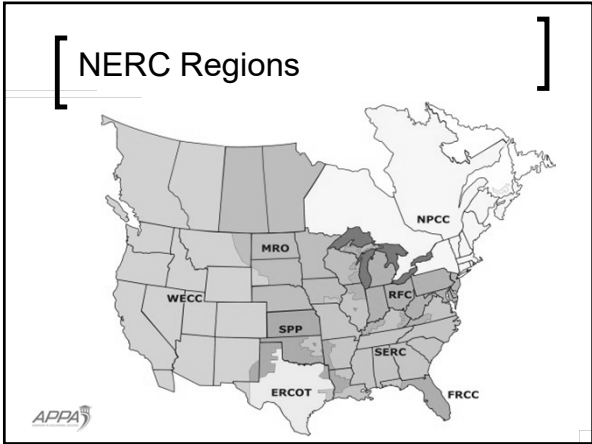


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American Society of Civil Engineers (ASCE)

Report Card on America's Infrastructure = D+

Energy	D+	Schools	D
Parks & Rec	C-	Transit	D
Roads	D-	Rail	C+
Ports	C	Inland Waterways	D-
Bridges	C+	Aviation	D
Waste Water	D	Solid Waste	B-
Levees	D-	Hazardous Waste	D
Drinking Water	D	Dams	D



ASCE Report on Infrastructure by State

	National	TX	PA	FL
Overall	D+	C	C-	C
Energy	D+	B+	C	C+
Drinking Water	D	D-	D	C+
Wastewater	D	C-	D-	C

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- Risk Management – Desired Outcomes**
- **Reliable** – rarely fails
 - **Redundant** – backup options
 - **Resilient** – recover quickly/seamlessly
 - **Efficient** – minimize waste
- APPA
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[Roles and Responsibilities]

The Institution

- o What comprises risk
- o Acceptable levels of risk
- o Resources provided for mitigation

Facilities Management

- o Identify and communicate facility risks
- o Outline solutions and costs
- o Insure effective implementation



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[Risk Management Session 2]

**Group Exercise
Tuesday**



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[Managing Risk]

1. Identify your most critical processes
2. Determine failure modes
3. Use risk matrix to prioritize
4. Develop solutions for high risks
5. Mitigate high risks - if possible
6. Communicate high risks that can't be mitigated

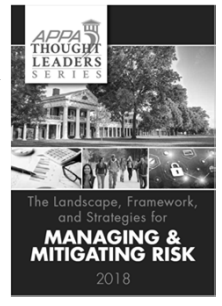


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Questions, Comments, Observations?

- Sign-in Sheet & Evaluations
- Related Electives
 - 363 – Disaster Prep and Business Continuity
 - 373 – Energy Conservation
 - 325 – Electrical Systems - Planning, Reliability, and Safety

<https://www.appa.org/Research/CFaR/tls.cfm>



This concludes
The American Institute of
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