

# **MIRA Conference 2023**

**Vancouver, BC, November 13 & 14 2023**

# Innovation and Risk

**Jon Nelson, Principal Engineer, Mining &  
Molten Materials, FM Global**

A yellow diamond-shaped sign with a black border and two small black dots at the top and bottom points. The sign contains the text 'RISK AHEAD' in a bold, grey, sans-serif font.

**RISK  
AHEAD**

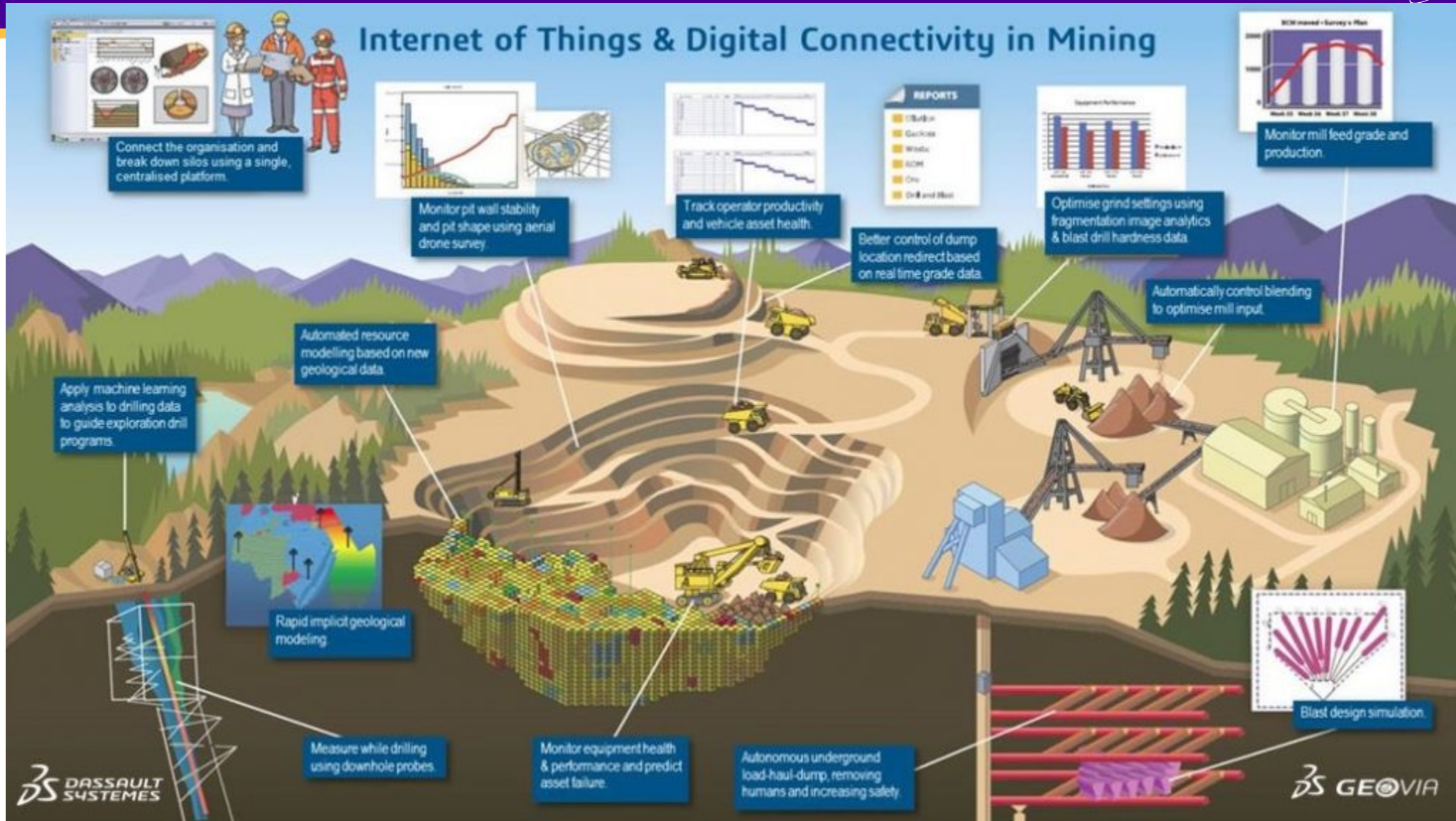
- Cyber Risk & The Internet of Things
- Renewable Energy and its risks

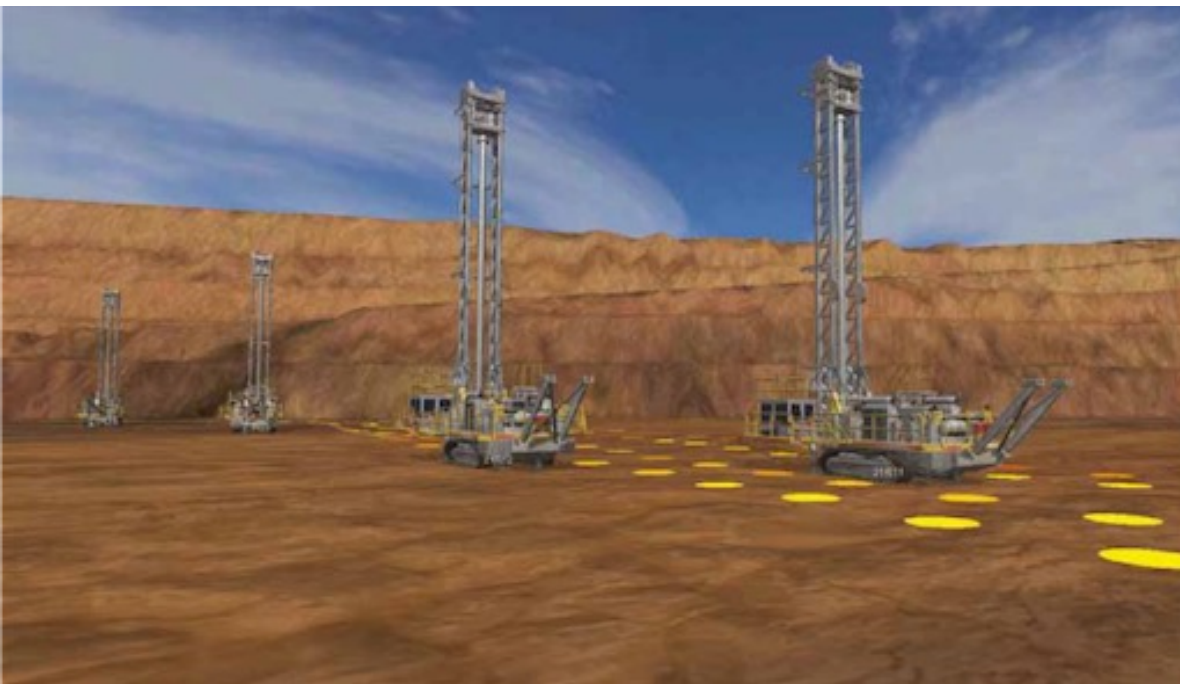
**Innovation and Risk**

# Cyber Risk



# Internet of things





# Mining Benefits from the internet of things

- Making mining safer
- Autonomous operation
- Improved process control
- Improved environmental controls
- Predictive maintenance

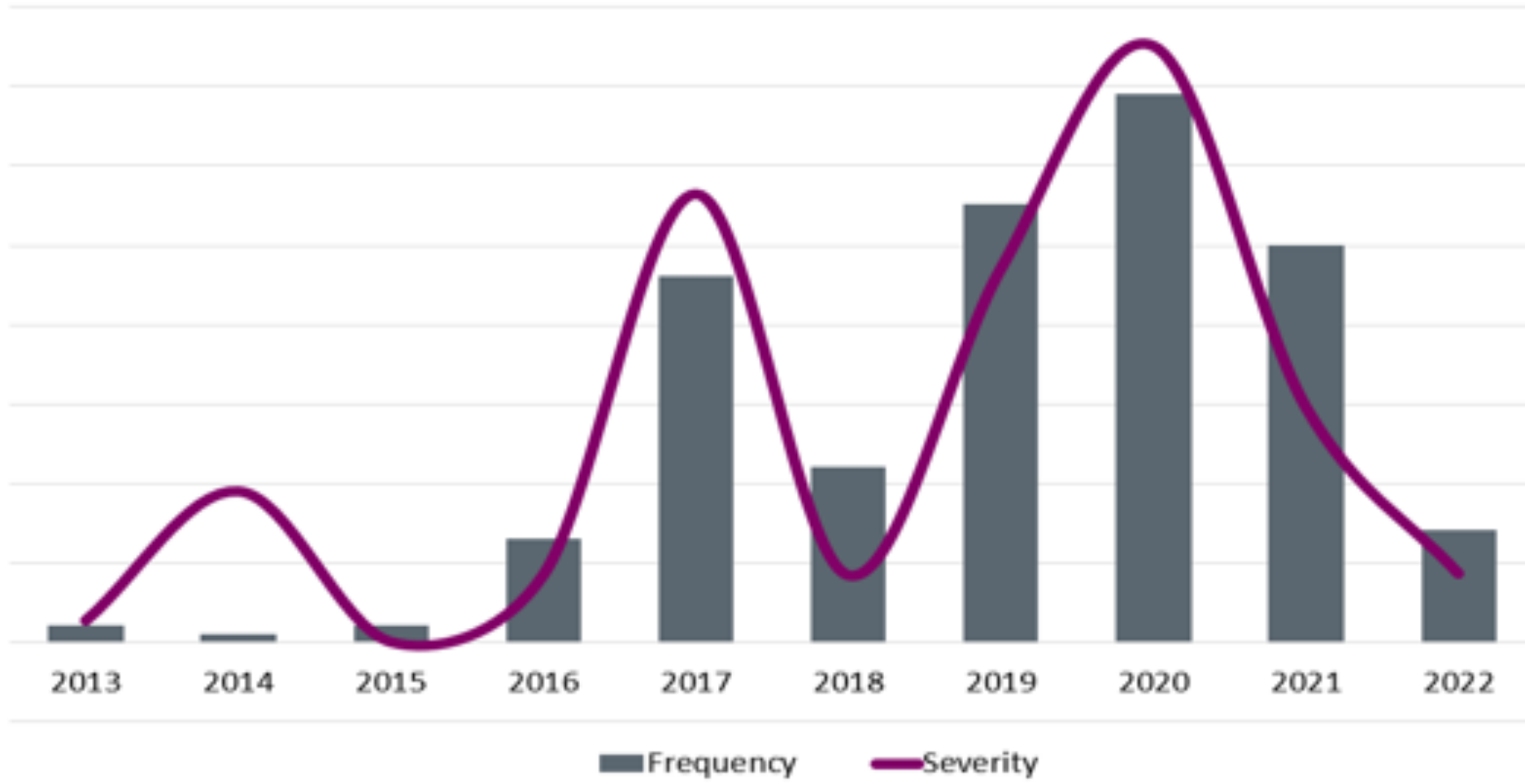


# Point Risk vs. Aggregate Risk





### Cyber Loss - Frequency & Severity



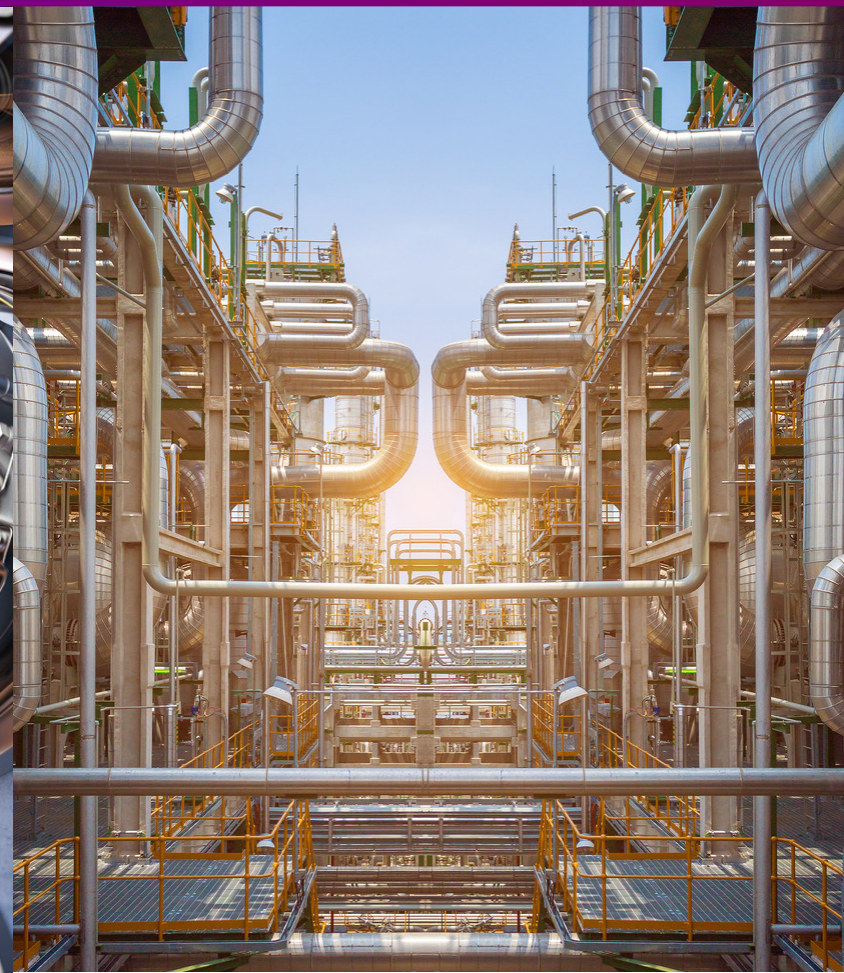
# The infamous



**2010 Stuxnet**  
**Iran**



**2015 Industroyer**  
**Ukraine**



**2017 Trisis**  
**Saudi Arabia**

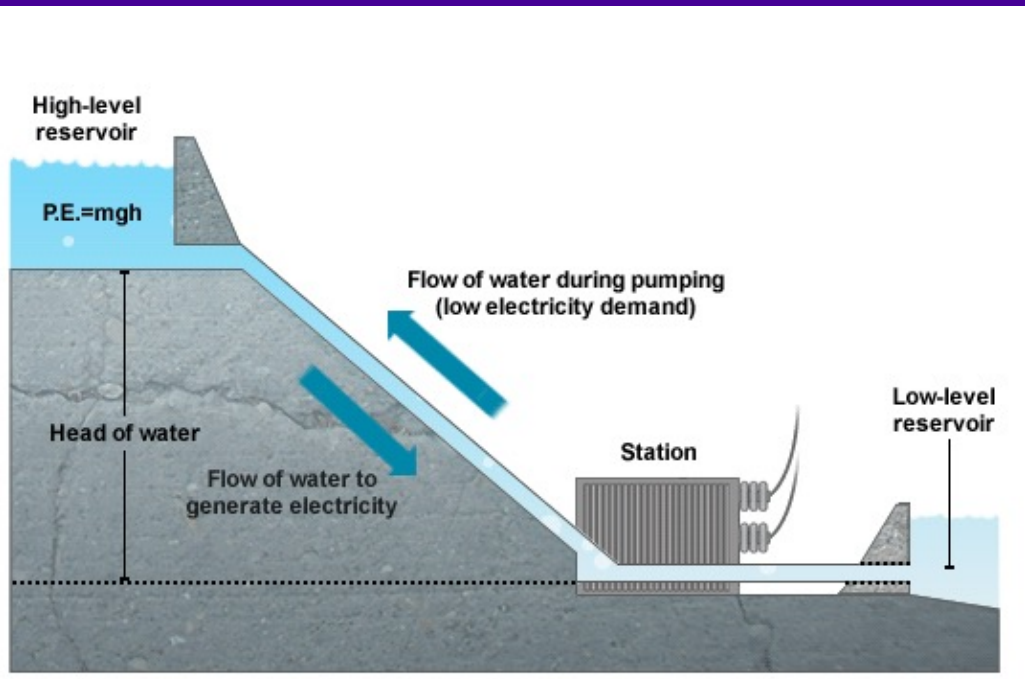
- Design your cybersecurity framework to a standardized set of practices.
- Identify and classify data based on business criticality, as well as sensitivity/confidentiality of data.
- Identify critical assets and physical/logical network access points at your facility and determine how access is controlled.
- Prioritize actions to improve physical and remote access control for those identified assets and network access points.
- Create and maintain a documented incident response plan to prepare employees on how to respond during cyber events.
- Test the plan



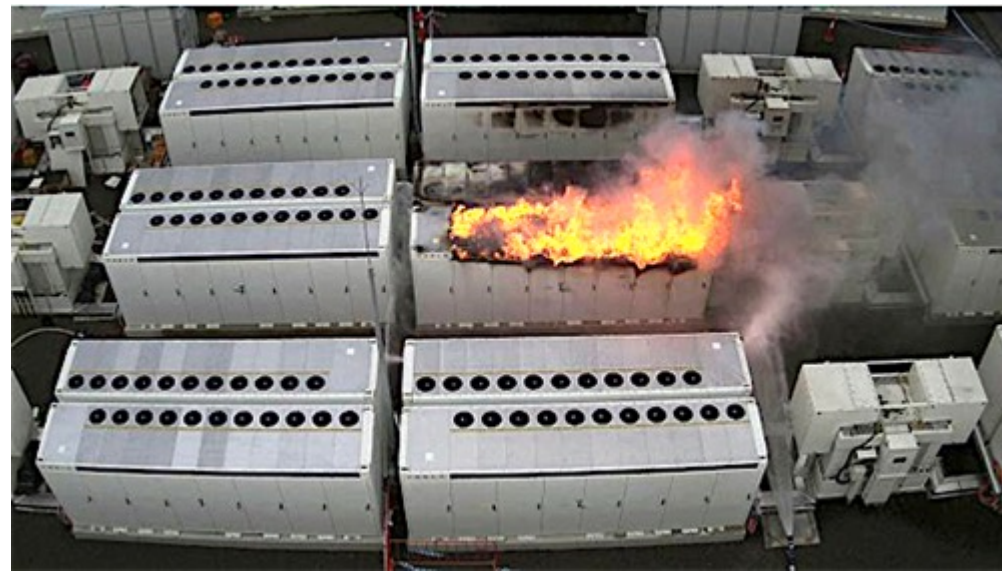
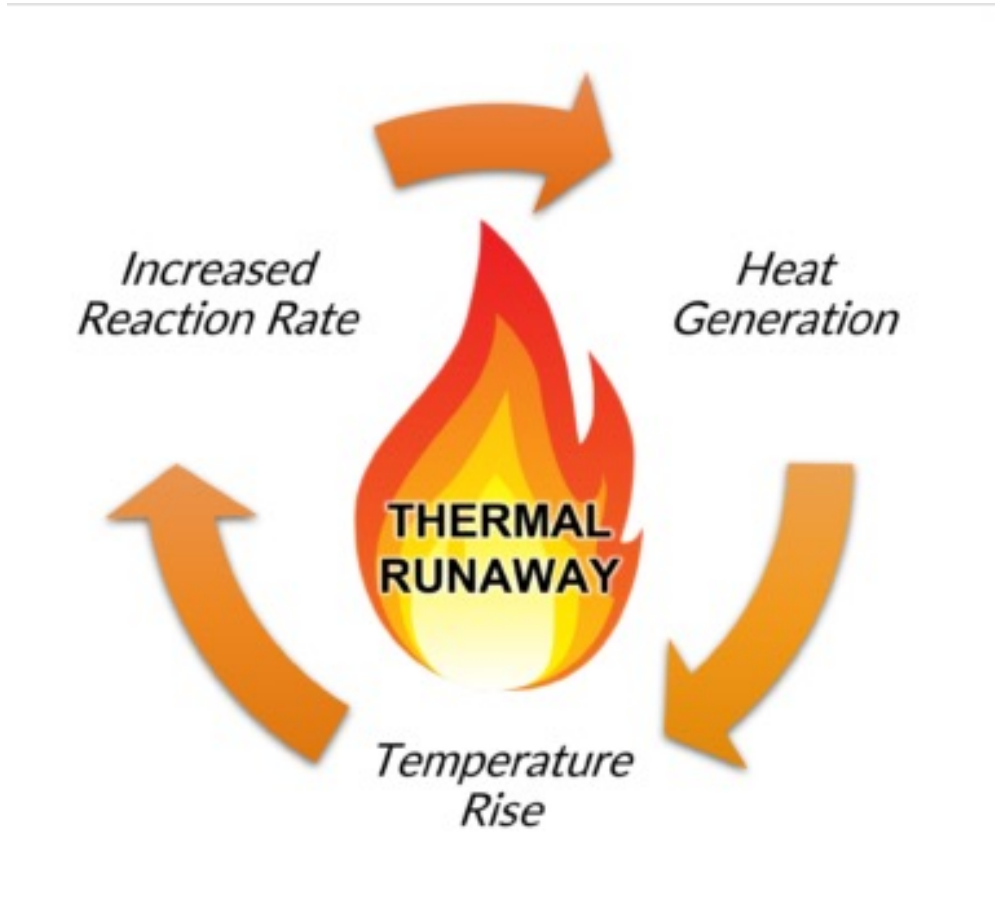
# Renewable Energy







# Energy Storage Systems Hazards

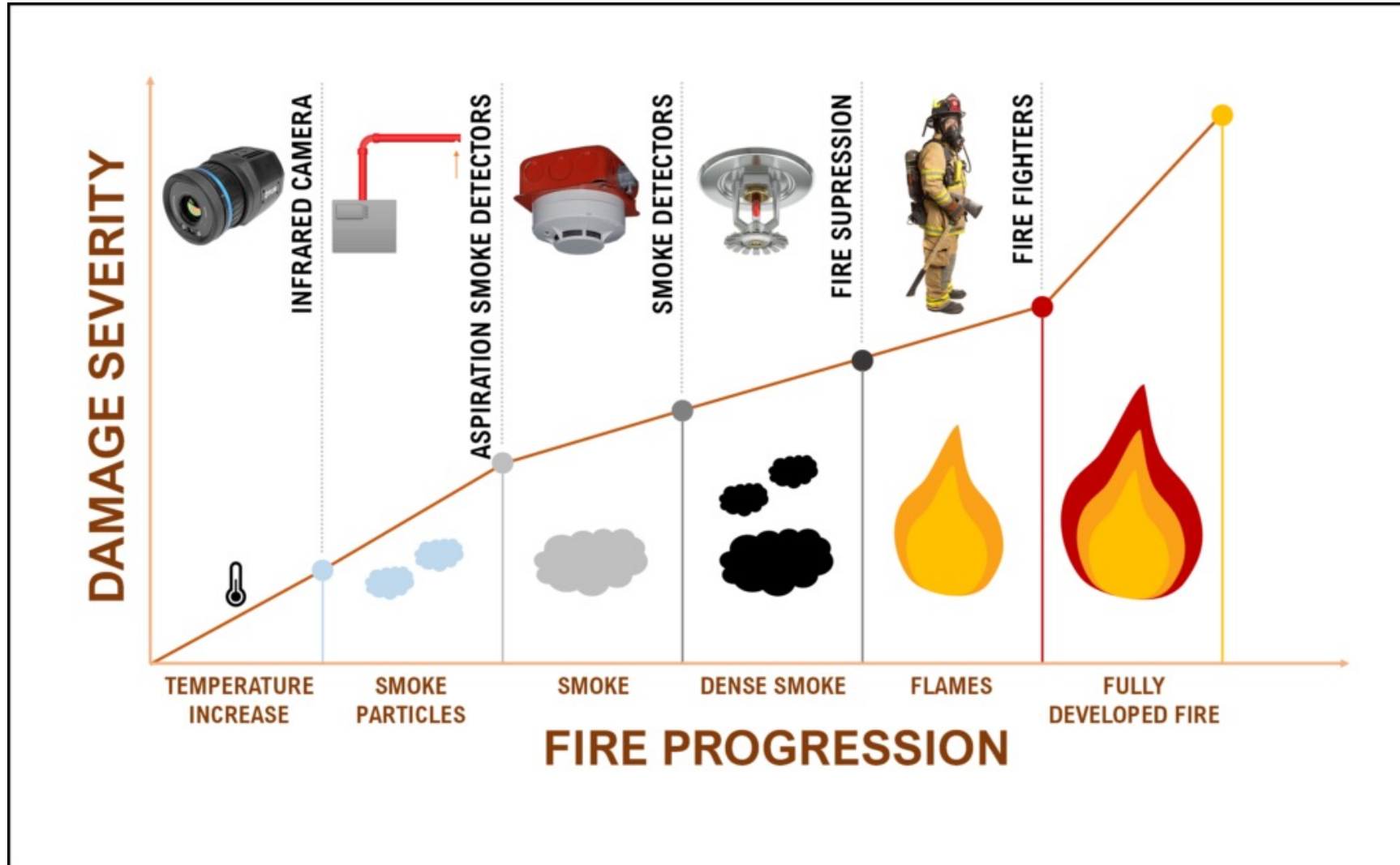


# Solutions – Engineering Controls

- Proper Maintenance
- Protective Devices
- Process Safety







**Thank you. Any questions?**

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**RESILIENCE IS A CHOICE.**