Culture and Reliability

North American Electric Reliability Corporation
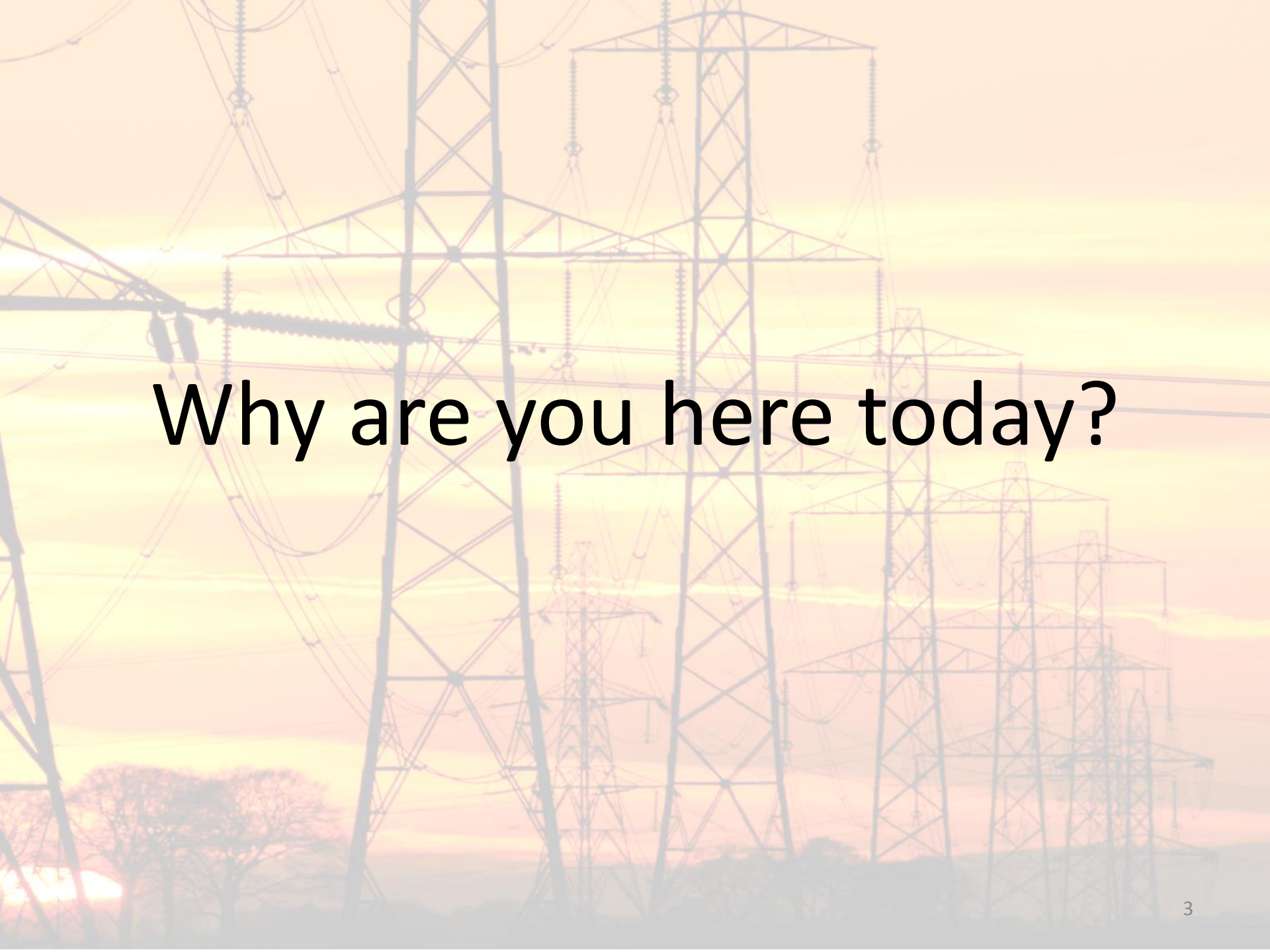
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This presentation does not represent the views of the Department of Energy

Why are you here today?

Let's start the conversation

A healthy culture...

...what we call a culture of reliability

Active listening ✓
Emotional Intelligence ✓
Sense of humor ✓

Organizational Culture

Shaped by leaders and workforce, it's a group dynamic

- Informal, undefined, unwritten, somewhat nebulous, evolutionary
- Truth is, it's real and tangible
- Multi-faceted: You can see it, touch it
- How it feels to be at work and
how we do work

- Positive AND Negative

- Reflected in:
  – Physical Environment
  – Business Practices
  – People, more than anything else

Organizational Learning

Leadership

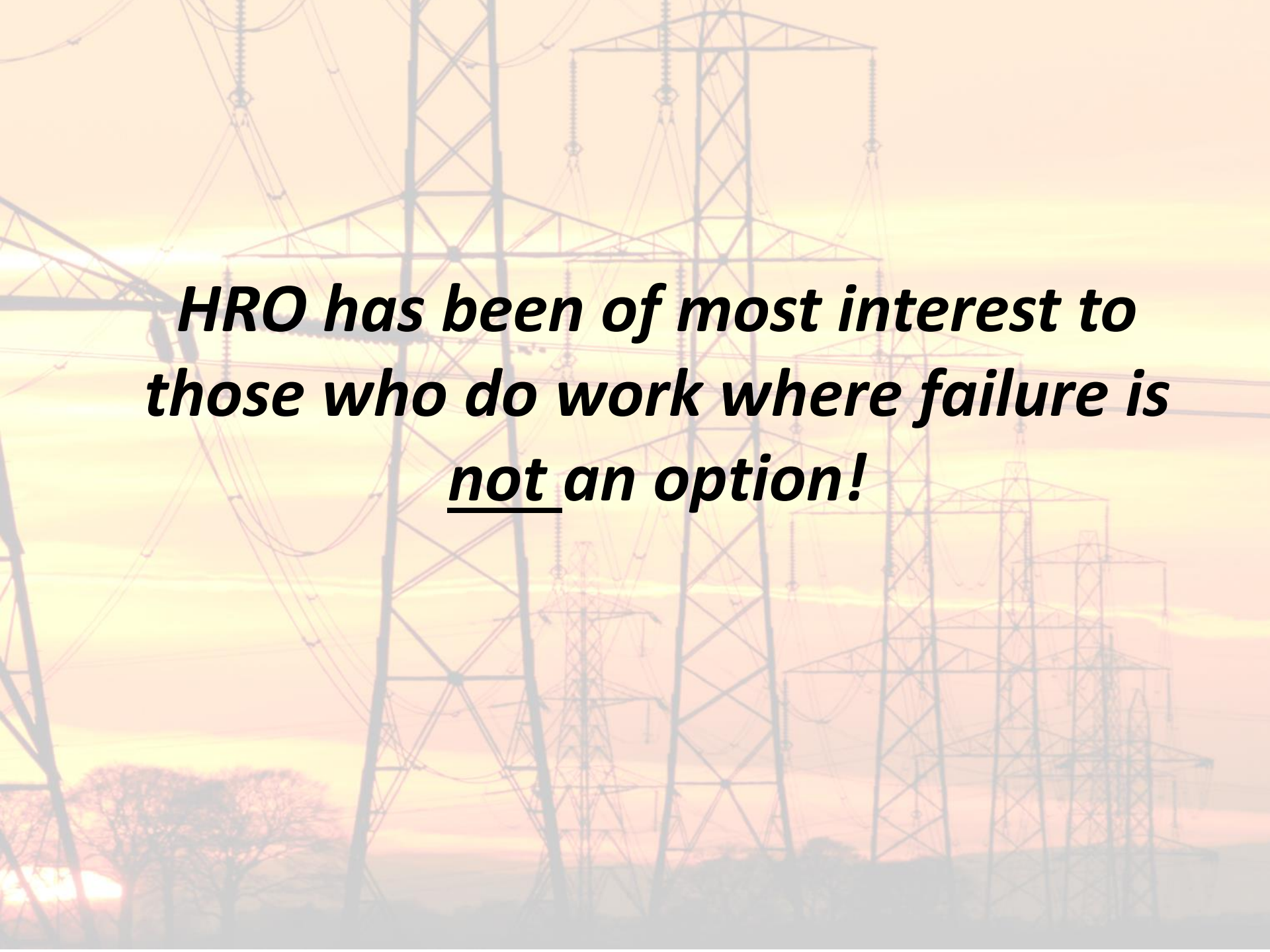Employee Engagement

Organizational Culture

What is a high reliability organization?

- An organization conducting **relatively error free operations** over a long period of time

- An organization that **repeatedly accomplishes its high hazard mission** while avoiding catastrophic events

- An organization in which **system failures are so punishing that they must be avoided at almost any cost**.

Examples of Reliability demanding organizations:
- nuclear power
- aircraft carrier operations
- grid
- aviation

HRO has been of most interest to those who do work where failure is <u>not</u> an option!

What HRO theory can do for you

Provides a common language, framework & practices

- Recognizes principles & practices shared by high reliability firms

- Permits you to communicate lessons learned with other High Reliability Organizations

- Enables executives to share HRO concepts with managers & workers who will develop detailed plans

- Changes attitudes about reporting important information

- Establishes & supports a safety culture

Five HRO Principles

1. Preoccupation with Failure
2. Reluctance to Simplify
3. Sensitivity to Operations
4. Commitment to Resilience
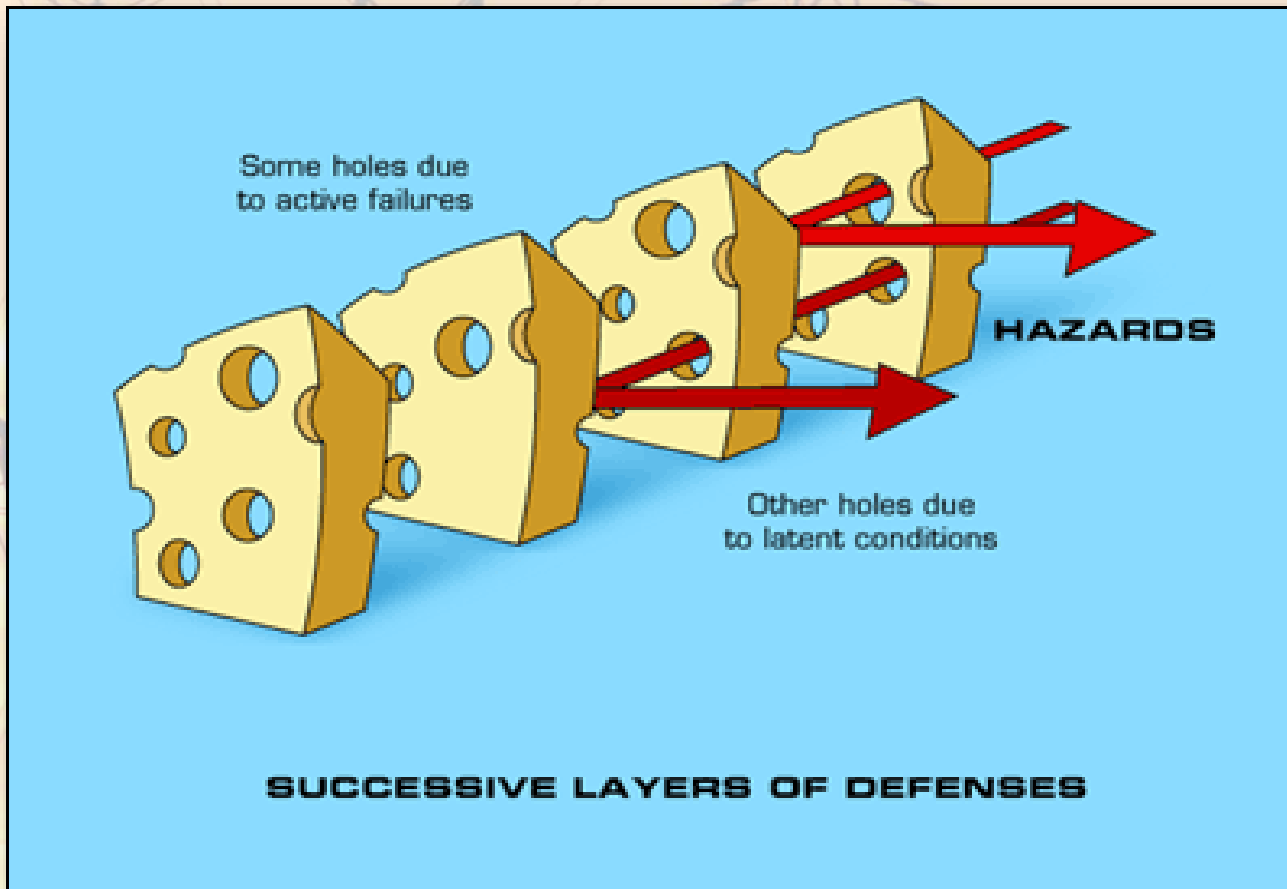5. Deference to Expertise

Normal organizations are error-inducing, high reliability organizations are "safety-promoting."

Normal organizations

- Error is a cause

- Accountability is a solution

- Reporting is reactive focused on past events

- Workarounds are how work gets done

- Design for success

- Managers produce short-term outcomes

High Reliability organizations

- Error is a mismatch of human capabilities & environment

- Accountability is mark of membership

- Reporting is proactive focused on conditions & future outcomes

- Workarounds are for the unexpected

- Design for failure

- Leaders create conditions & cultures that enable people to excel

Some holes due to active failures

Other holes due to latent conditions

HAZARDS

SUCCESSIVE LAYERS OF DEFENSES

"Human error is a consequence, not a cause. Errors are shaped by upstream workplace and organizational factors... Only by understanding the context of the error can we hope to limit its reoccurrence."

James Reason

What is the cost of system error?

Life ✓

Morale ✓

Reputation ✓

1. Time lost from work by injured employee.
2. Lost time by fellow employees.
3. Loss of efficiency due to break-up of crew.
4. Lost time by supervisor.
5. Training costs for new/replacement workers.
6. Damage to tools and equipment.
7. Time damaged equipment is out of service.
8. Loss of production for remainder of the day.
9. Damage from accident: fire, water, chemical, explosives, etc.
10. Failure to fill meet deadlines.
11. Overhead costs while work was disrupted.
12. Others? _____

"Striving for high reliability is NOT another project -

it is the long-term commitment to fundamental and social change in our hospitals and health systems to:

- becoming vocal, passionate, and active leaders for providing safe, highly reliable care for every patient,
- changing the culture in our hospitals to a well-functioning "just and safe culture,"
- and applying robust process improvement methods and tools for much more sustainable improvement.

Our goal is zero – zero preventable patient harm."

South Carolina Safe Care Commitment -

High Risk or High Consequence?

$$R = C \times P$$

Risk **=** **C**onsequence **x** **P**robability

If we are truly working with high-risk operations, ethically and morally we should __not__ be in business!

Safety Culture vs. Safety Performance

- You need a strong safety culture to have good safety performance

- Can we measure improvements in safety performance that result from efforts to improve safety culture?

- What metrics are:
  - valid?
  - reliable?

Another look at High Reliability Organizations?

- An organization that repeatedly accomplishes its high hazard mission while avoiding catastrophic events, despite significant hazards, dynamic tasks, time constraints, and complex technologies

- A key attribute of being an HRO is to learn from the organization's mistakes

…a learning organization

Reflecting...

o *What is the regulator role?*

o *Are we talking culture or programs?*

o *What is leadership role?*

Leadership: most influential component of any organizations' culture

Leadership means influencing people by providing purpose, direction, and motivation to accomplish a task.

- Purpose- Gives employees a reason to accomplish the mission.

- Direction- Gives them the guidance to accomplish the mission.

- Motivation- Motivation gives them the will to accomplish the mission.

Leaders must <u>interact</u> and <u>communicate</u> with their subordinates.

Leadership

	Strong Technical Emphasis	**Weak Technical Emphasis**
Strong Leadership Emphasis	Highly Effective HRO Leaders	Non-technical Leaders
Weak Leadership Emphasis	Technical Managers without developed leadership skills	Non-technical, non-developed leaders

Why Is Being an HRO So Important?

Some types of system failures are so punishing that they must be avoided at almost any cost.

These classes of events are seen as so harmful that they disable the organization, radically limiting its capacity to pursue its goal, and could lead to its own destruction.

Laporte and Consolini, 1991

Strategic Approach for Seeking Reliability in Complex Sociotechnical Systems

$$\frac{(Re / Md)\ (\Delta W / Br)}{OILs} \longrightarrow \emptyset E$$

➢ Re – increase mindfulness to notice & mitigate risk
➢ Md – maximizing defense effectiveness

➢ ΔW – work as imagined vs. work as done
➢ Br – bolstering resilience

➢ OILs - Observations, Insights & Lessons
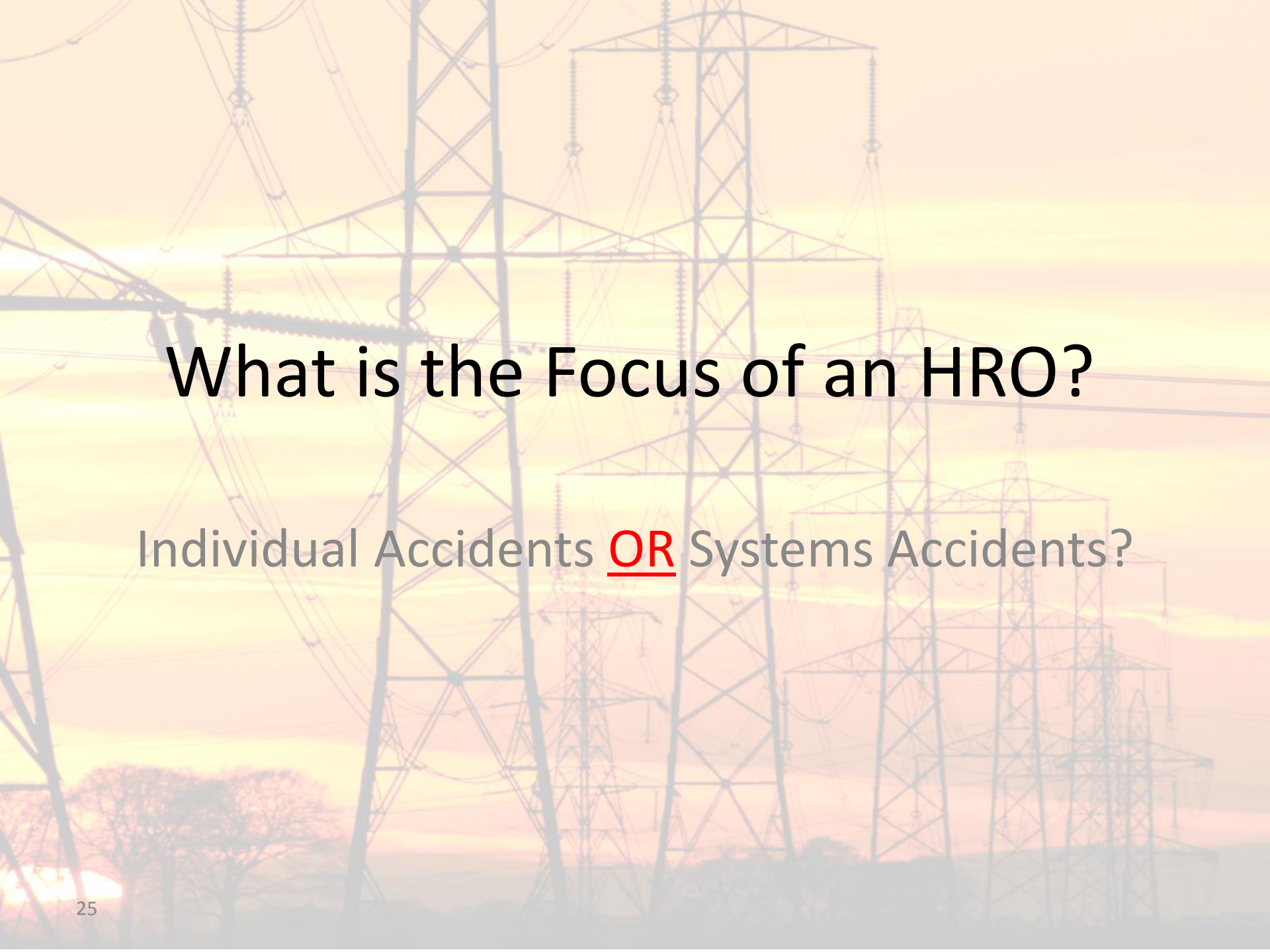➢ ØE – no consequential events

From compliance to performance -

" As they strive for high reliability, organizations shift away from having outside bodies solely determine their quality agenda to developing an agenda that incorporates the organization's most important goals."

Mark R. Chassin , MD, FACP
The Joint Commission & Joint Commission Center for Transforming Healthcare
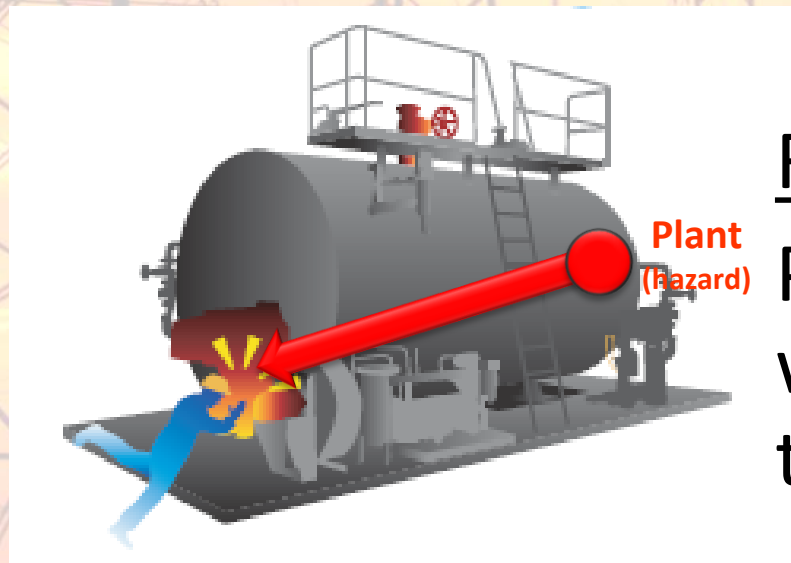
What is the Focus of an HRO?

Individual Accidents <u>OR</u> Systems Accidents?

Individual Accident

- An accident occurs wherein the worker is not protected from the plant and is injured (e.g. radiation exposure, trips, slips, falls, industrial accident, etc.)

Plant (Hazard)

Human Errors (receptor)

Focus:

Protect the worker from the plant

Systems Accident

- An accident wherein the system fails allowing a threat (human errors) to release hazard and as a result **many** people are adversely affected
  - Workers, Enterprise, Surrounding Community, Country

Human Errors
(threat)

Plant
(hazard)

Focus:

Protect the plant from the worker

The emphasis on the system accident in no way degrades the importance of individual safety , it is a pre-requisite of an HRO

Strive To Avoid A Systems Accident!

- Goal of a High Reliability **Organization**
  - Strive daily for High Reliability **Operations**

- A systems approach
  - Every individual is not going to have a perfect day every day

  - To avoid the catastrophic accident a **systems approach** is required

Indicators of high reliability

- Mission clarity
- Technical excellence
- Standardization for resilience
- Integrated management system
- Work Design & Control
- Configuration control
- Maintenance
- Change management

- Learning as work
- Cognitive tools for deliberate practice
- Shared mental models
- Community & professional identity
- Distinctive culture
- Relationships & communication among sub-cultures
- Separate structure for improvement

Culture of Reliability
Strive for Perfection – be Satisfied with Excellence

Strive to improve culture of reliability →

Gap is excellence

Strive to improve safety culture →

Gap is good

Current Culture

Culture of Reliability –
Searching for Weak Signals

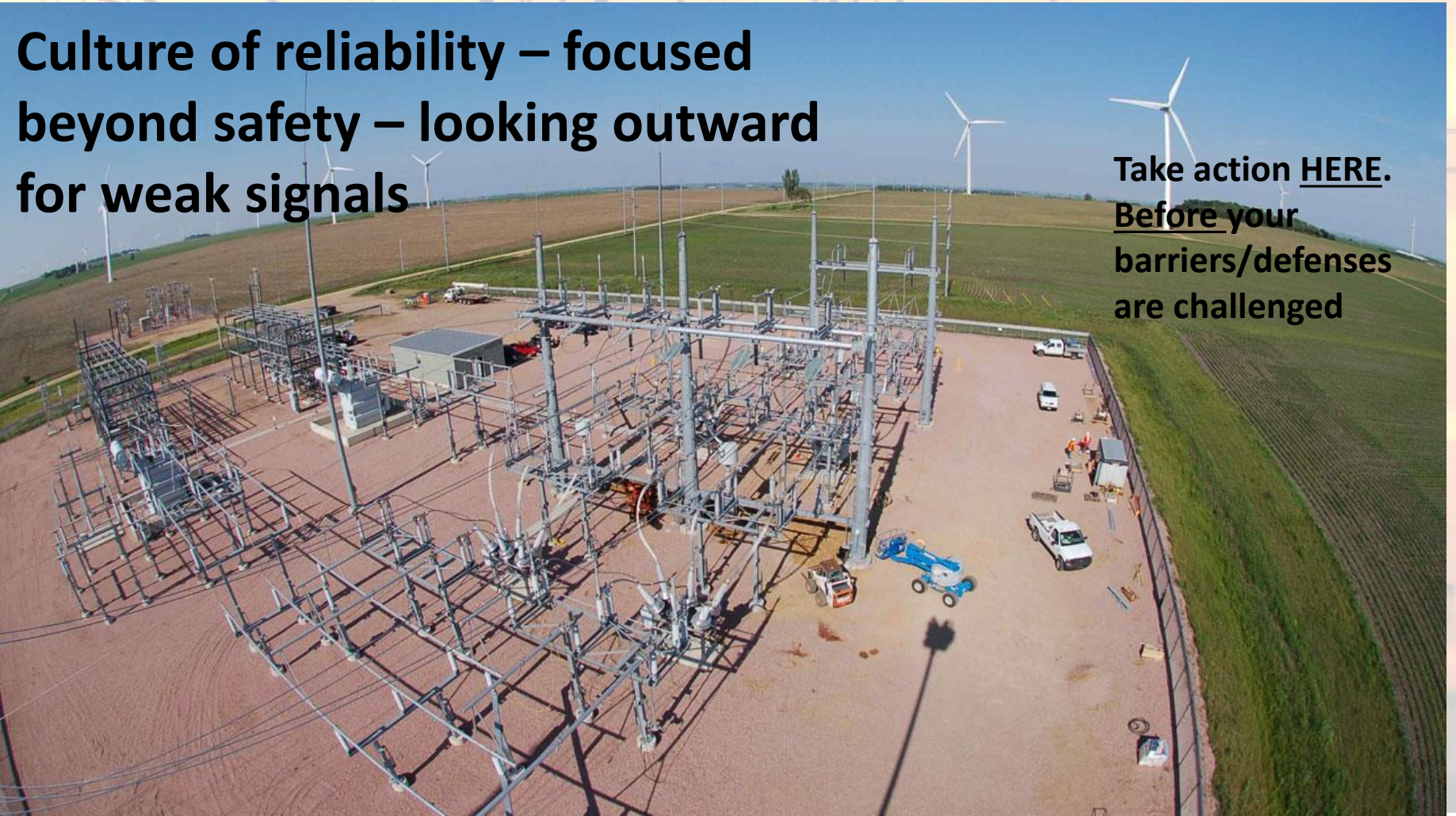**Take action <u>BEFORE</u> barriers are challenged!**

Safety Culture

Safety culture
ensures operations
remain protected
behind intact
barriers -- inward
focus

Culture of Reliability

Culture of reliability – focused beyond safety – looking outward for weak signals

Take action **HERE**. **Before** your barriers/defenses are challenged

Culture of Reliability

To make sure your High Reliability Operations remain protected behind intact barriers

Taken action before your barriers/defenses were challenged

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Results of a Culture of Reliability

Organization focuses beyond safety, to the practices of high reliability to produce consistent, dependable, and excellent products and services while looking for weak signals before they challenge the HRO system.

Questions?

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END OF PRESENTATION