



meridian

Resilience or Relevance

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Resilient? Relevance?



Oxford dictionary definitions

resilience

NOUN

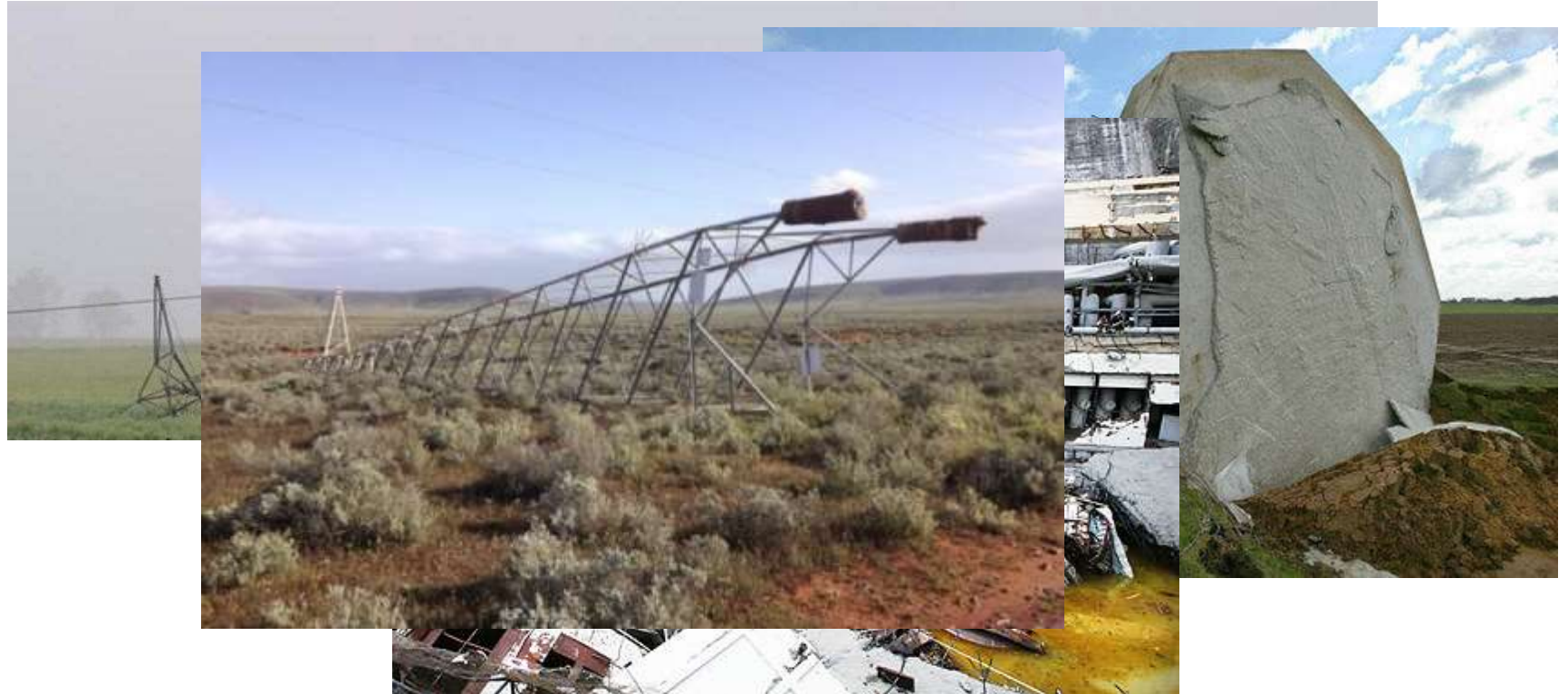
1. The capacity to recover quickly from difficulties; toughness
2. The ability of a substance or object to spring back to shape; elasticity

relevant

ADJECTIVE

1. Closely connected or appropriate to what is being done or considered
 - 1.1 Appropriate to the current time, period, or circumstances; of contemporary interest

Resilient to what?



Resilient to what?

What about that.....

- Birds nest under the control desk
- Critical communications link
- Essential IT services supply
- Control system UPS



Resilience essentials



As an industry we must be resilient to.....

- Extreme weather events
- Earthquakes
- Intentional damage threats
- Cyber security threats
- Power system events

But most importantly

Change !

Change, but why?

Failure to adapt and be resilient to change increases the risk of assets, systems, processes or industry sectors facing irrelevance.

But everything is just fine.....our product is superior



Change is continually happening and will continue such as:

- Generation mix and technology
- Control and protection systems
- Communications capability
- Consumer behaviour
- How electricity is being used
- Regulatory views and constructs

Failure to embrace and accommodate these changes could lead to adverse outcomes

Opportunities and solutions



With change comes opportunities for improvement and new solutions its about ensuring these positive aspects of change are pursued.

Consider the following changes from a NZ generation perspective

- Introduction of CCGT's
- Increase in asynchronous generation
- Large scale inverter connected wind turbines
- Displacement of thermal generation

Consider the under voltage FRT capability of an inverter connected wind turbine compared to a traditional synchronous machine!

On the horizon

- Modular and flexible energy storage

Preparing for the future



How do we cope with the challenges to resilience over multiple time frames?

1. Long term / strategic – Years to Decades
2. Medium term – Months to Years
3. Short term – Days to Weeks
4. Real time - Now

It will involve technology, information, risks, new thinking and people, but how?

But don't forget Relevance!

Thanks for listening ,Any Questions?

