



**SIEMENS**

# A Safety Case Framework for Offshore Wind

RenewableUK Health & Safety Conference – January 28<sup>th</sup> 2016

# Outline



## 1. Introduction

- Siemens
- Risktec

## 2. Why the need?

## 3. The Solution – a Safety Case approach

## 4. What is it?

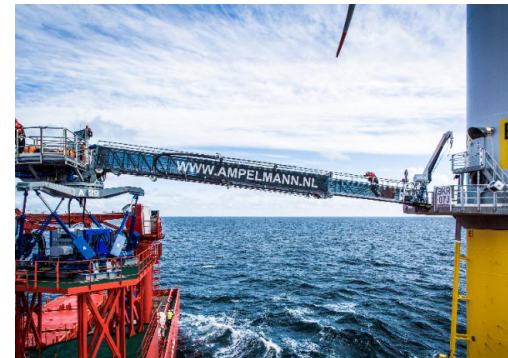
## 5. What it isn't?

## 6. What are the benefits?

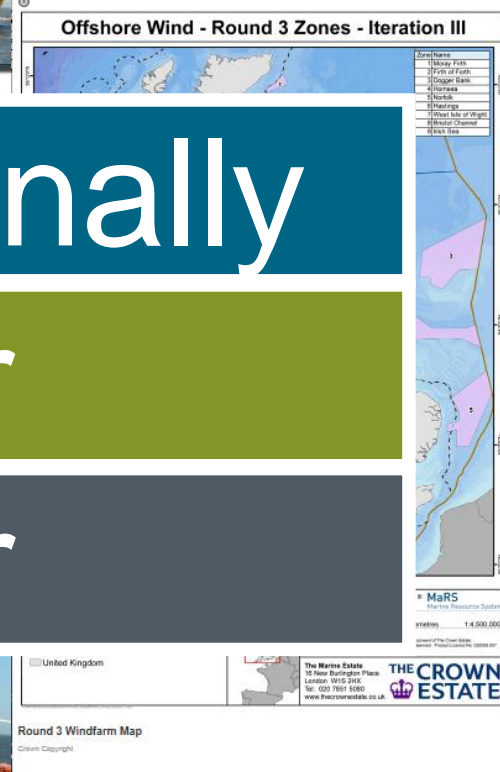
## 7. Where next?



# Siemens Offshore Renewables



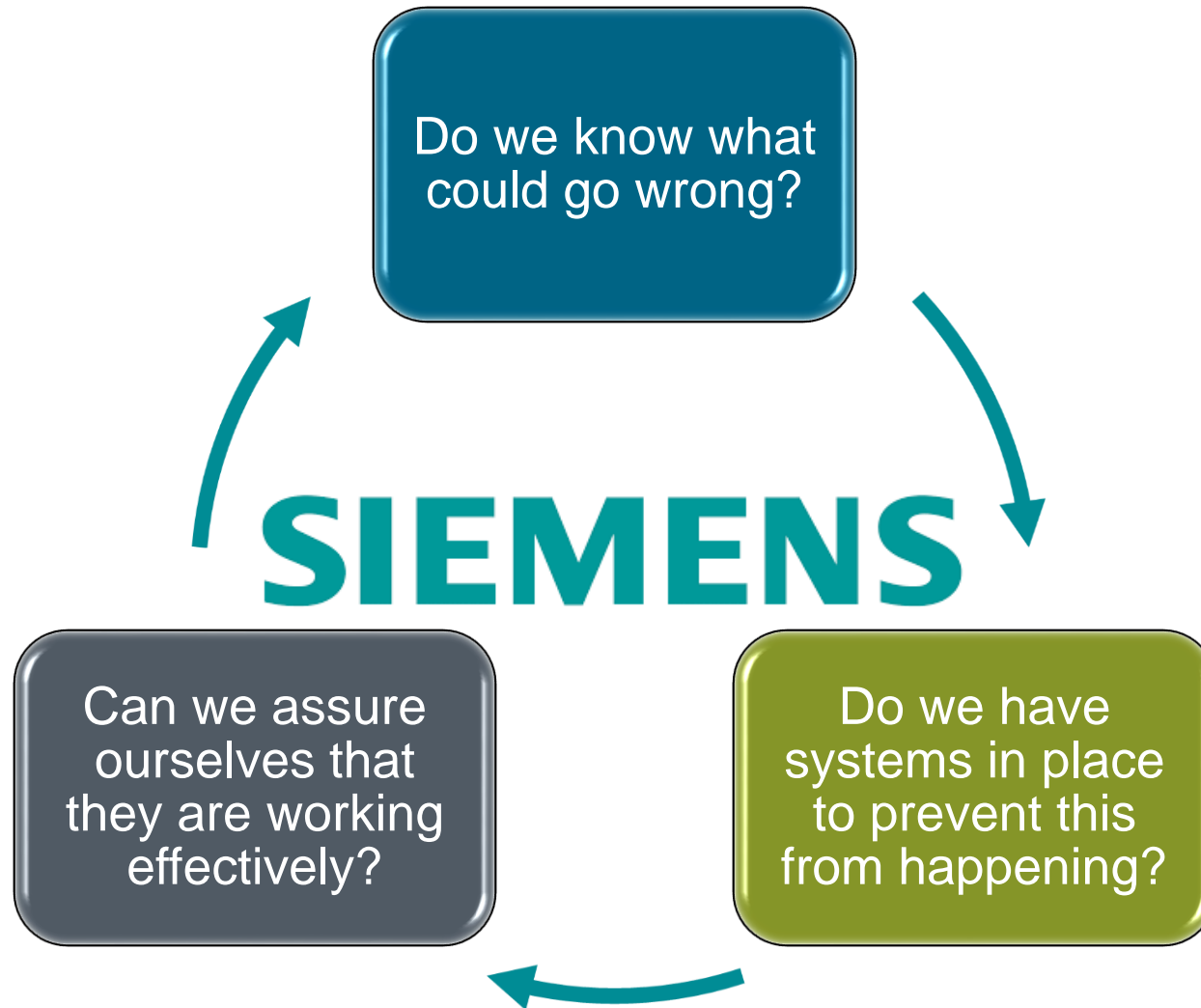
## Why the need?



# Siemens Internally Customer Regulator



## Is Siemens managing risk effectively?



## Risktec

- Independent and specialist risk management consulting and training provider.
- Part of the TÜV Rheinland Group.
- We focus on:
  - Safety & Risk Assessment - what are the risks?*
  - Management Systems - how are they managed?*
  - Culture & Behaviour - what really happens!*
  - Training & Education - knowledge transfer*
  - Resource Solutions - specialist, flexible support*
- 260+ personnel across 16 offices world-wide.
- Primarily operating in Major Hazard Industries [Oil & Gas, Nuclear, Defence etc.].
- Becoming increasingly involved in **Wind Industry** [onshore and offshore].



## What is a Safety Case?

# The demonstration that something is safe!

That adequate controls are in place to ensure that the major HSE risks are both tolerable and reduced As Low As Reasonably Practicable [ALARP].

## What does it look like?

Traditional Major Hazard Industries [Nuclear, Oil & Gas, Defence]

A document issued to a regulator to show risks are ALARP to obtain a license to operate.

Offshore Wind

Not constrained by regulation.

Whatever Industry wants it to be.

Document ↔ ? ↔ Live Safety Management System

.....but regardless of the presentation, it's about the practical implementation of a **Risk Management approach; a Safety Case Approach!**



## Dispelling the Myths.....



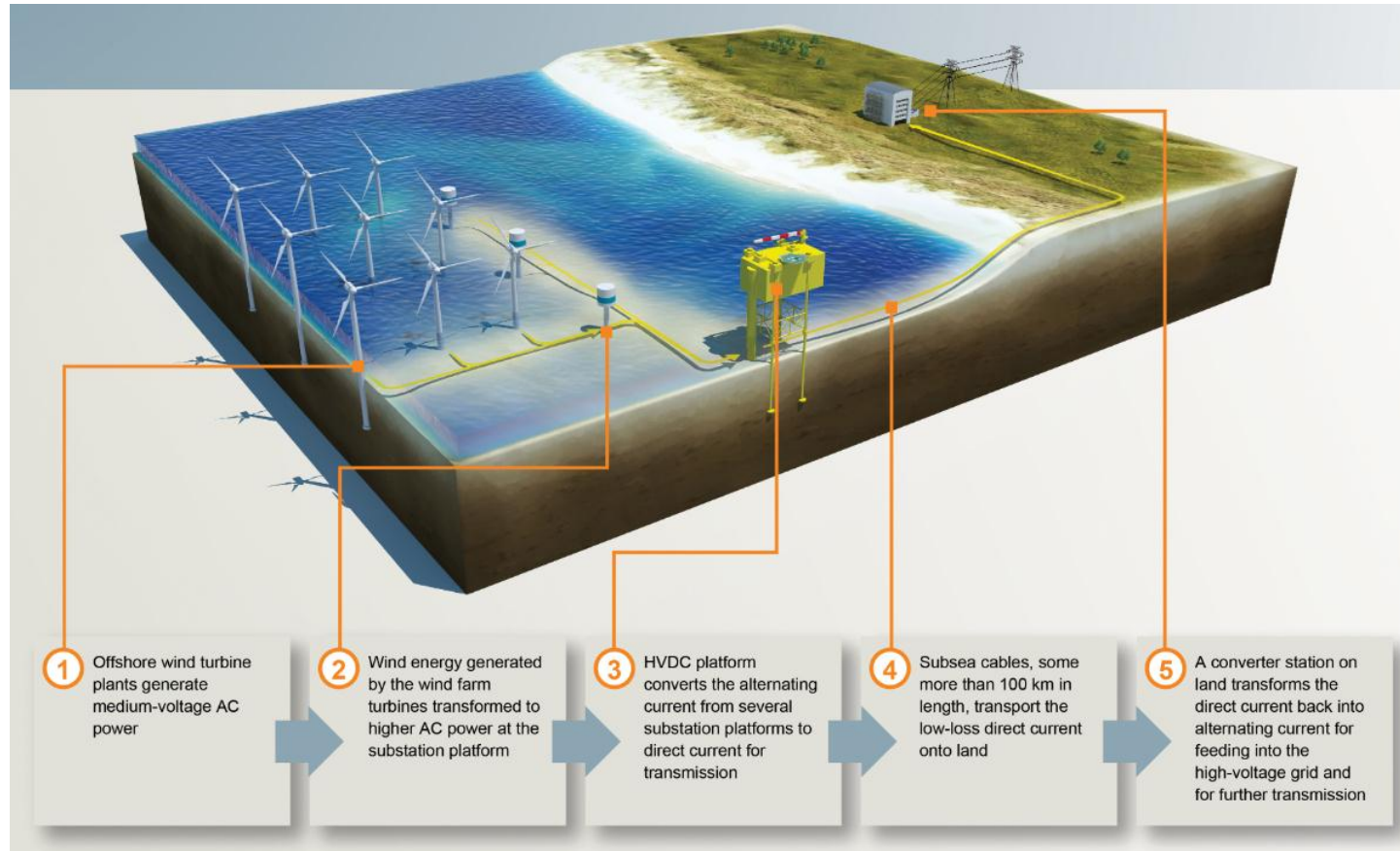
- ✘ Complex and theoretical.
- ✘ A thick, weighty document that no one reads.
- ✘ Something to tick a box and get a stakeholder off your back and then sits on a shelf gathering dust.
- ✘ Symptomatic of a legislative regime.
- ✘ Very expensive.

- ✓ Proportionate to risk.
- ✓ Fit for purpose, simple, clear and effective. No baggage or precedents! Useful.
- ✓ Provides a central focal point to maintain and improve safety throughout the life-cycle of an asset. A live document.
- ✓ Independent from legislation. Good practice. Shows stakeholders you are managing risk effectively.
- ✓ Effective management of risk proven to reduce overall project costs.

**Industry Opportunity**



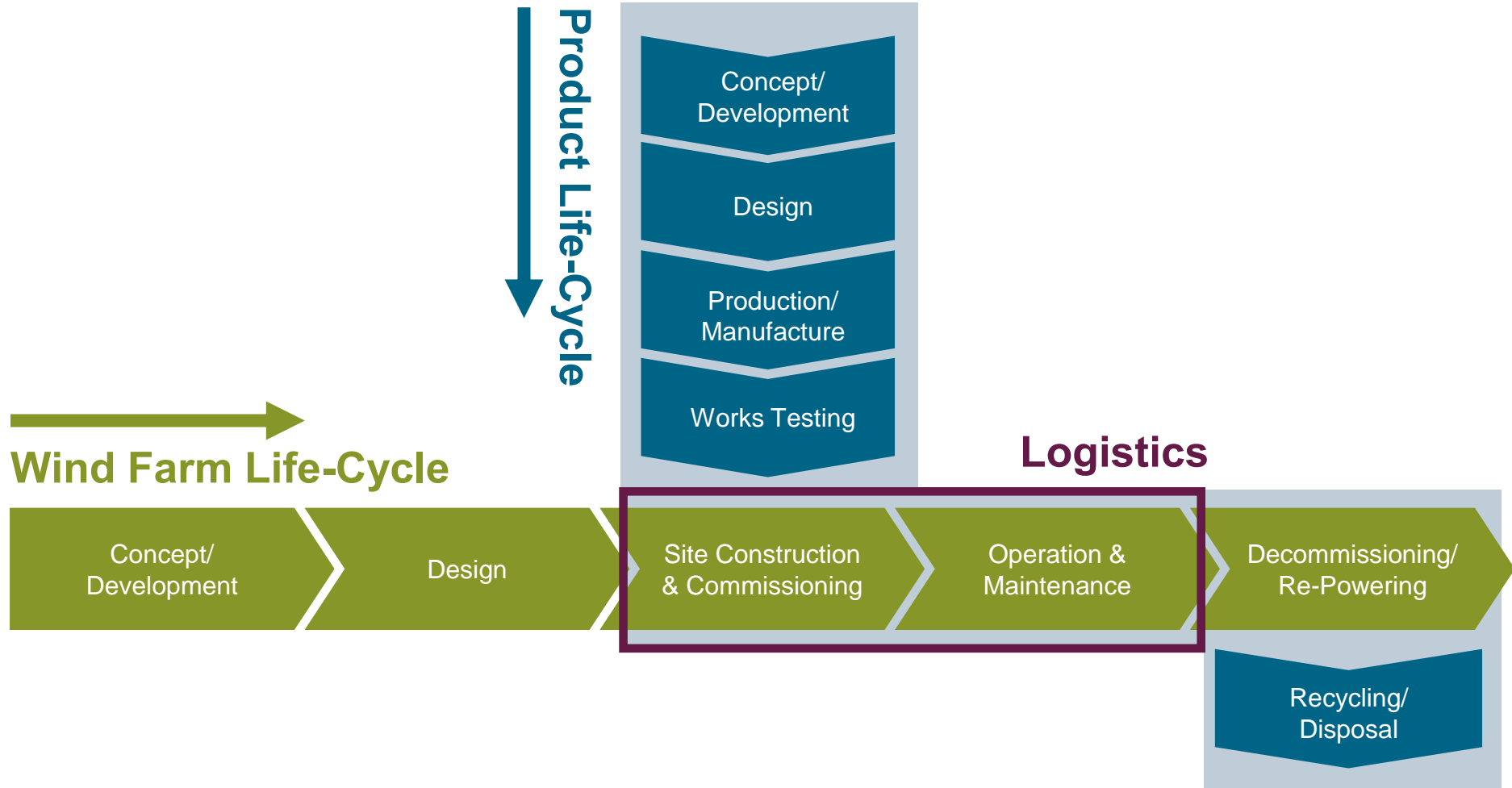
# A Hypothetical Wind Farm – the foundation of the Safety Case Framework



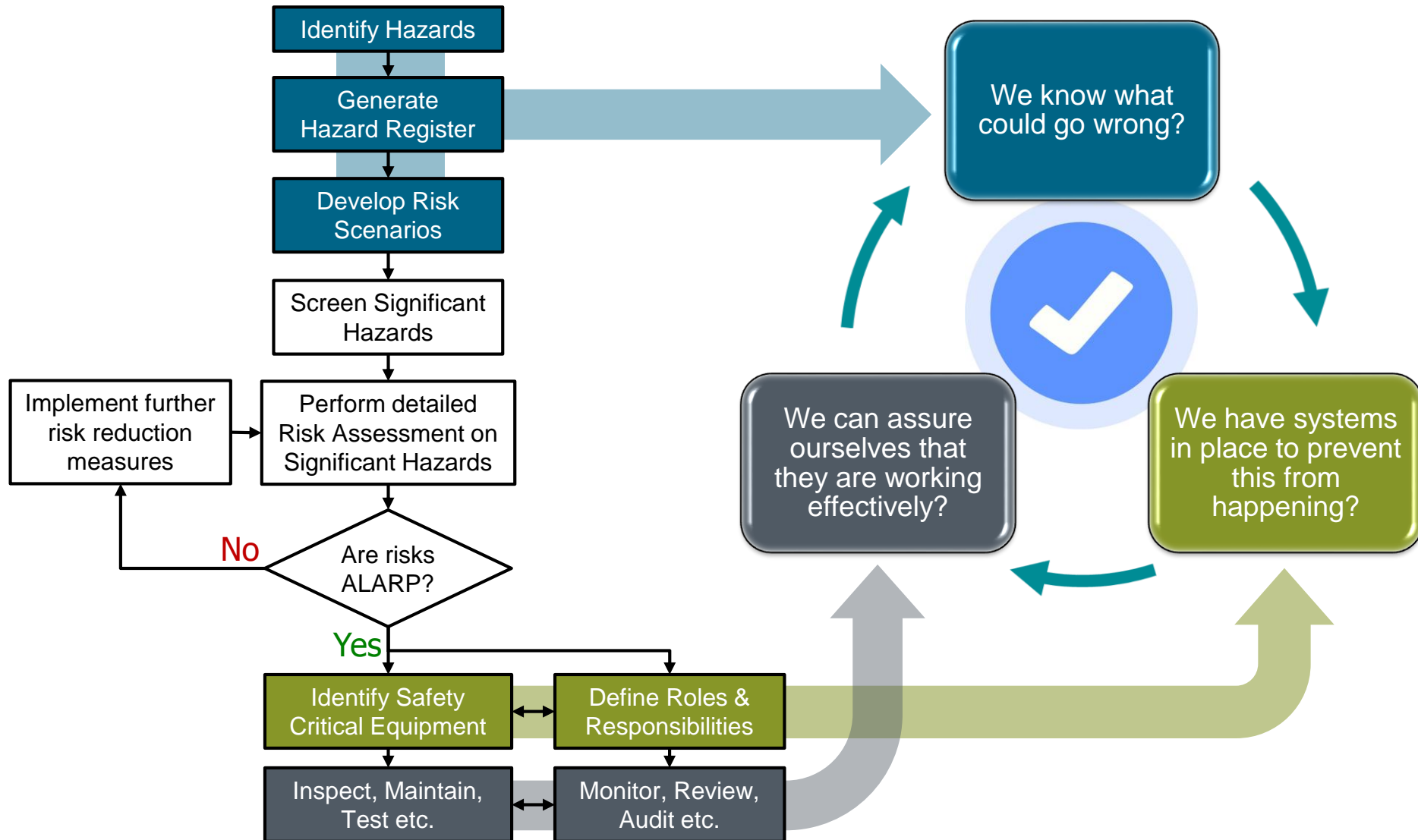
All activity associated with an offshore wind farm from air or sea port and from construction through operation and maintenance to decommissioning.

The Framework covers all areas. Although Siemens may not be responsible for all hazards, there is still a requirement to understand how the risk has been controlled.

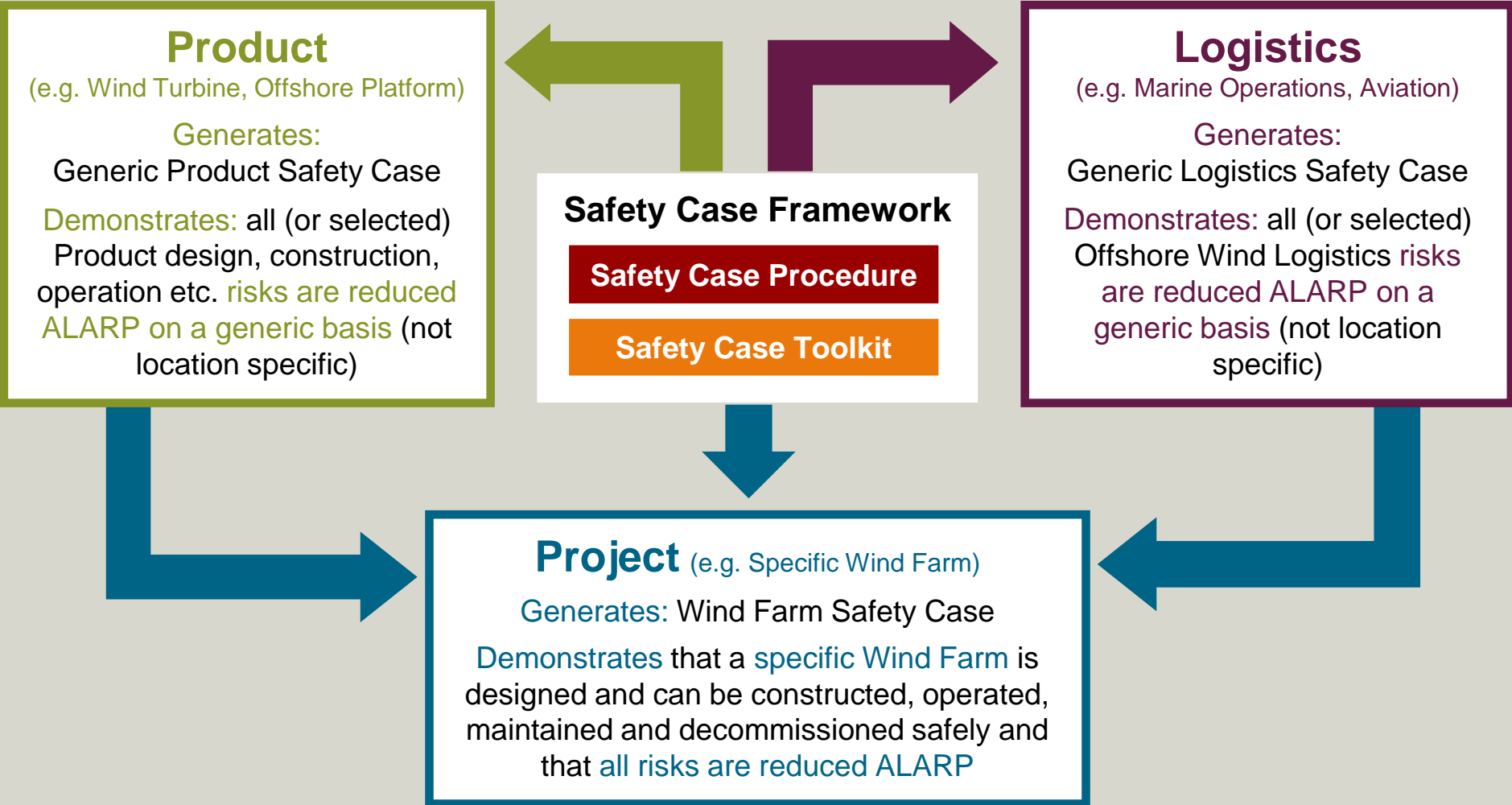
# What does Safety Case Framework cover?



# Risk Management Process



# What does it look like and how is it used?





# Significant Hazard Working Groups – ALARP decision makers?

## Control of Hazardous Energy

Fire, Smoke and Gas

Mechanical Systems

Electrical/EMF Systems

Pneumatics and Hydraulics Systems

## Structural Integrity

Fallen Loads

Marine Vessel Collisions

Helicopter Collisions

Structural Failure

## Occupational Risk

Personnel Marine & Helicopter Transport

Occupational Health & Welfare

Working at Height

Lifting Activities

## Emergency Preparation and Response

First Aid

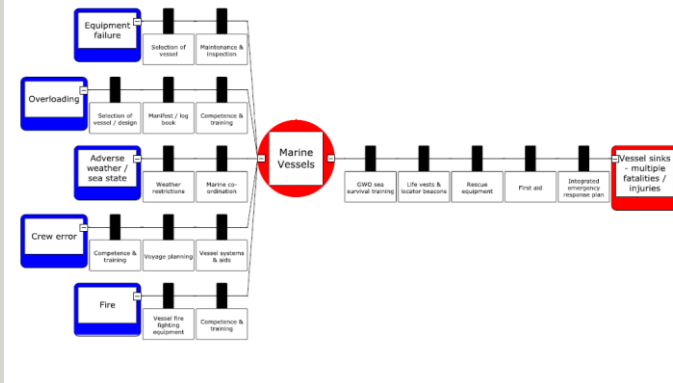
Evacuation, Escape and Rescue

Crisis and Emergency Response

**Design, Construction, Commissioning, Operation, Maintenance, Service**

## Significant Hazard Working Groups

- Accountable
- ALARP decision makers
- Bowtie owners and approvers



# Significant Hazard Working Groups – ALARP decision makers?

## Control of Hazardous Energy

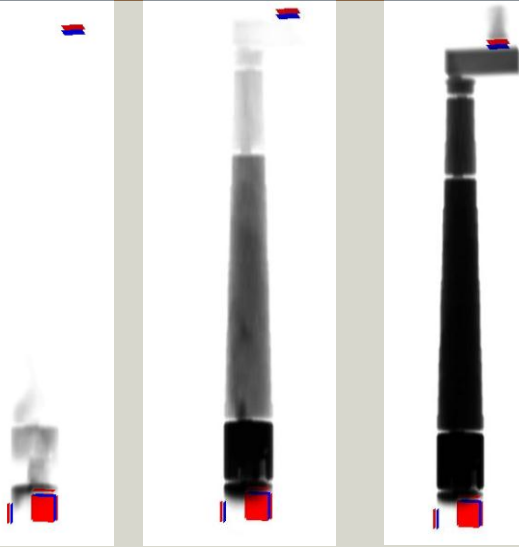
Fire, Smoke  
and Gas



## Emergency Preparation and Response

Evacuation,  
Escape  
and Rescue

Crisis and  
Emergency  
Response



## Conclusions – Safety Case Framework



Systematic process of identifying all serious ***Product*** and ***Project*** risks – independent of owner. Ensures risks ***Managed*** not ***Analysed***

***Living process*** that allows lessons from other products or projects to be shared – continued improvement. ***Blueprint*** for the future.

Focus on risk to ***people*** – breaks down silo mentality. ***Cultural change*** producing ***results***.

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