

BUILDING RESILIENCE - ENERGY SUPPLY EMERGENCIES

Sara Cheyne & Pauline Adam

INTRODUCTION



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PURPOSE



Engage, educate, enlighten, encourage & eradicate!

Provide a wider understanding of the complexities and implications around energy supply emergencies

Highlight impact, interdependencies and assumptions that can influence your own businesses – knowns and unknowns!

INTENTION

- 1 Provide a high level overview of the infrastructure of our respective sectors
- 2 Provide an overview of the impact of a Network Gas Supply Emergency
- 3 Share oversight learning from our preparation for a Regional and National Power Outage
- 4 To bring thoughts around preparedness and resilience from these discussions to your sector and area of expertise

DEFINITION FOR ENERGY SUPPLY EMERGENCIES

- **Network Gas Supply Emergency**
 - Insufficient gas supplies within the National Gas network of pipelines across Great Britain
 - Localised supply loss, e.g. due to damaged pipeline
- **National Power Outage**
 - Total failure of National Electricity Transmission System across Great Britain
- **Regional Power Outage**
 - Significant failure of the electricity network across large areas of Great Britain

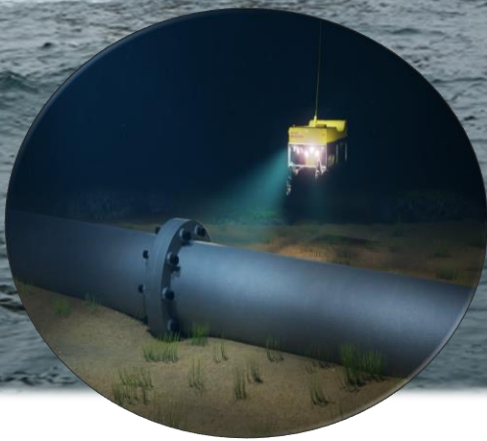
COMMON FACTORS ACROSS BUSINESSES



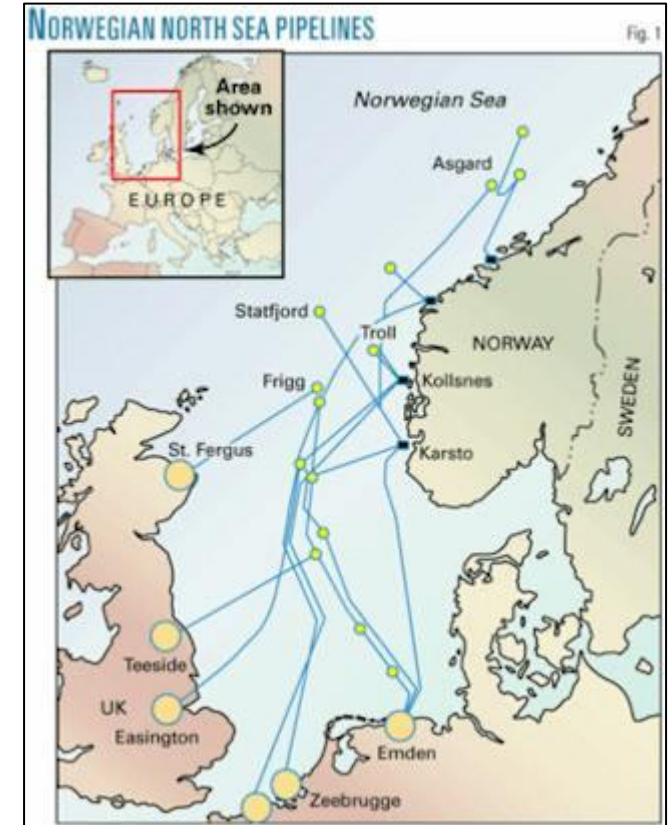
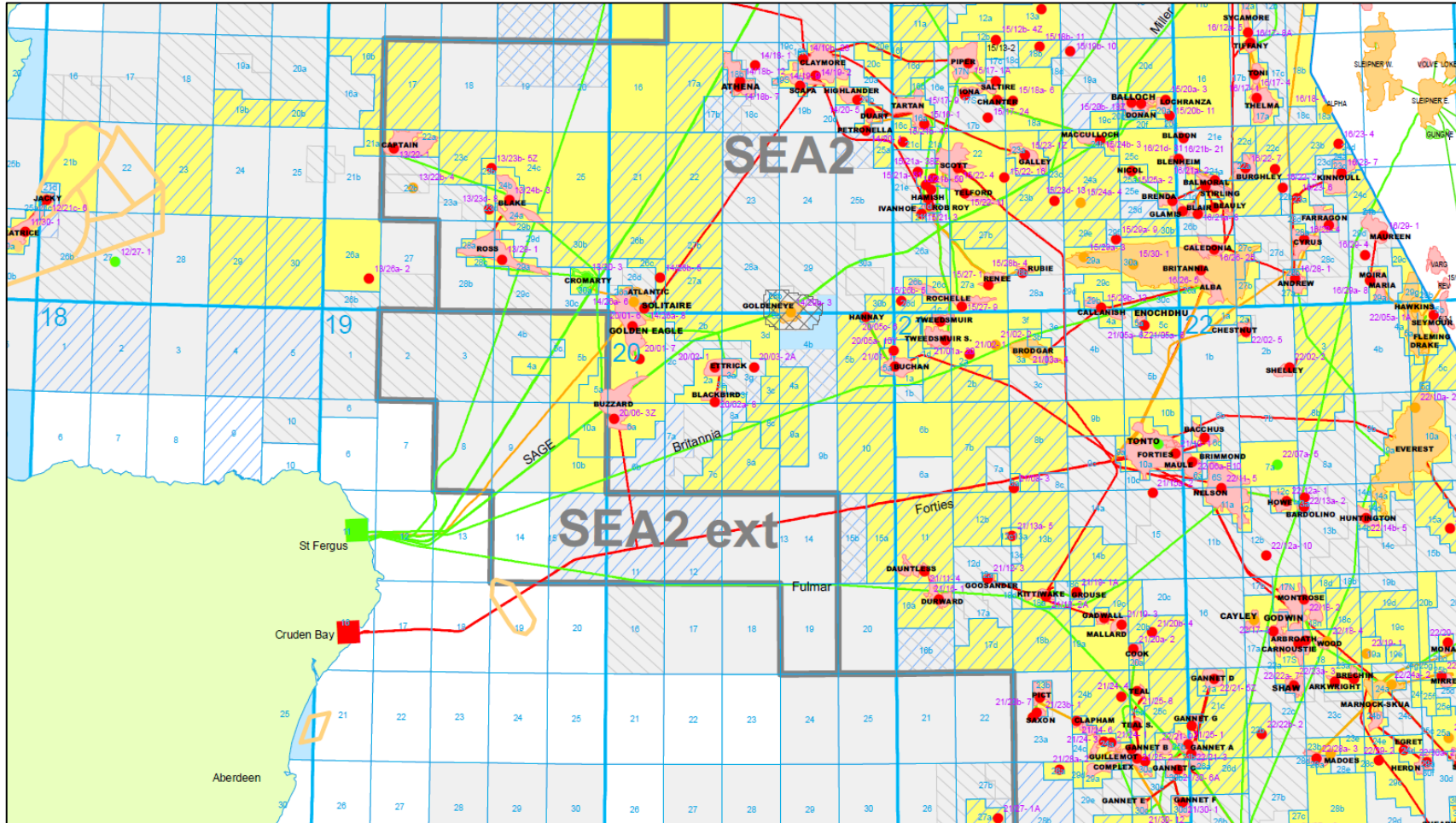
We all have the same considerations:

- People
- Property (physical & intellectual)
- Products
- Partnerships
- Profitability

THE OFFSHORE ENVIRONMENT

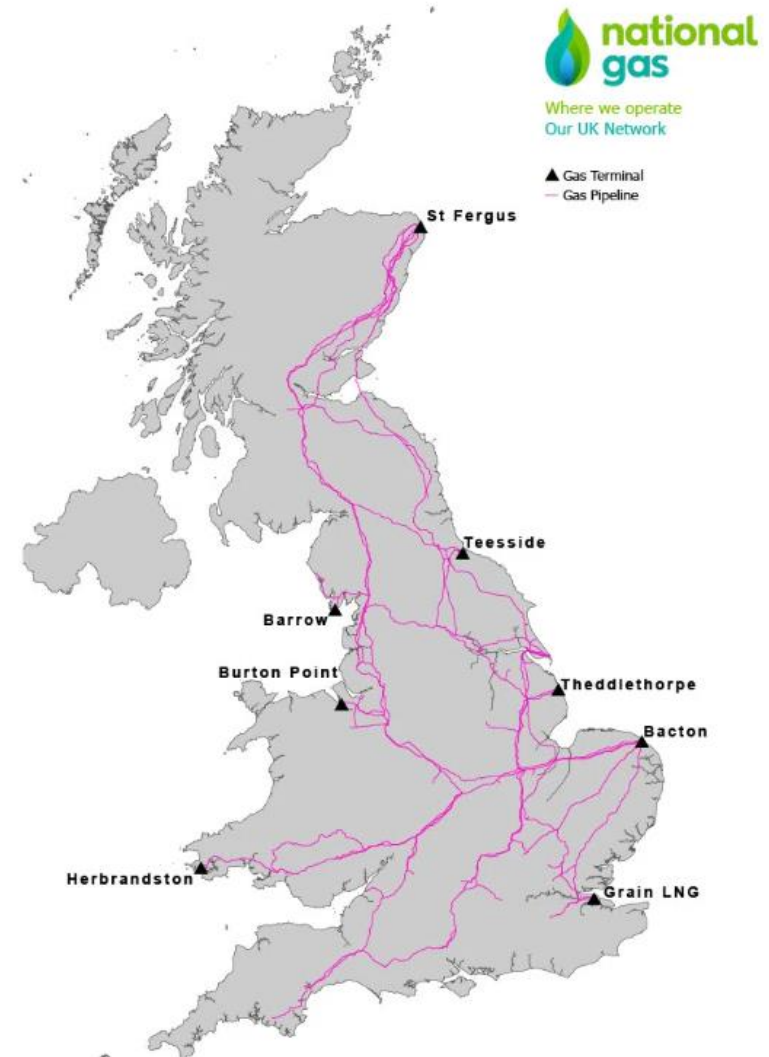


BACKGROUND – INFRASTRUCTURE (OFFSHORE)

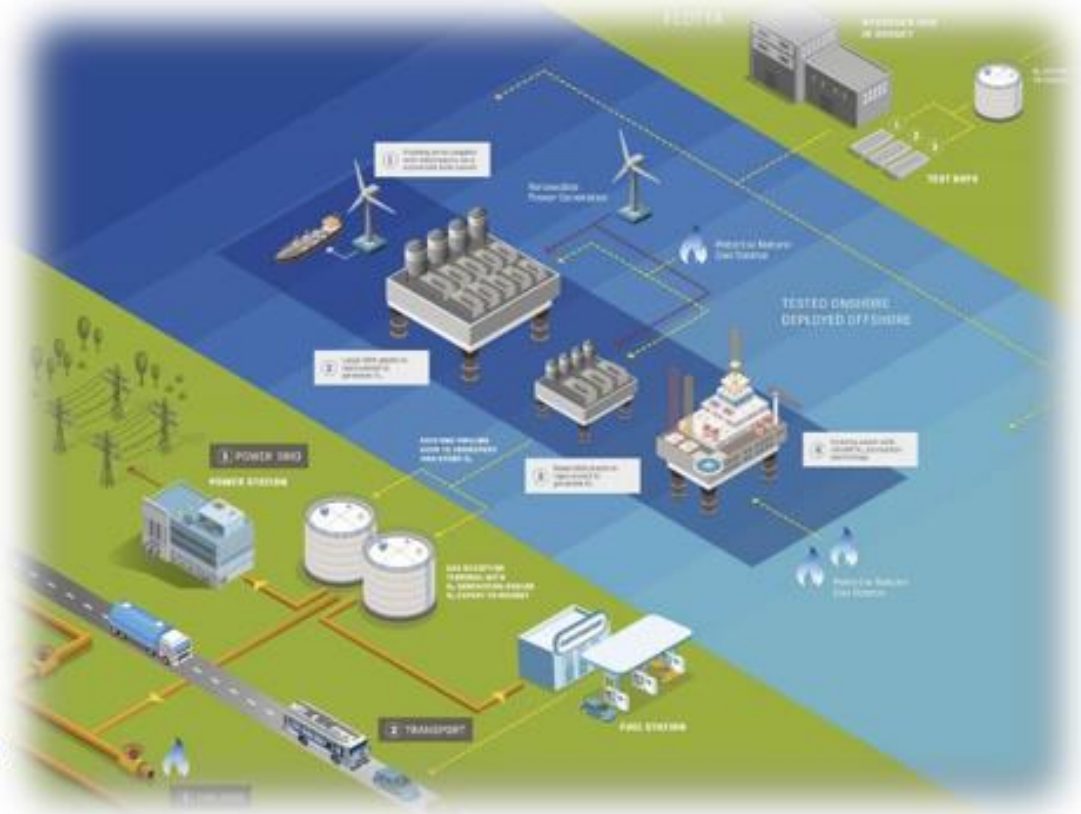


BACKGROUND – ONSHORE

- Several entry points for gas supplies into Great Britain from UK and Norway Continental Shelves
- Three LNG terminals
- Two interconnected pipelines from GB to Belgium and Netherlands
- One pipeline from GB to Ireland (north and south)
- Four Distribution Network Operators who transport gas from National Transmission System to domestic and industrial customers
- Several gas fired power stations for electricity generation



ALSO CONTRIBUTING - RENEWABLES

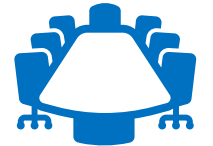


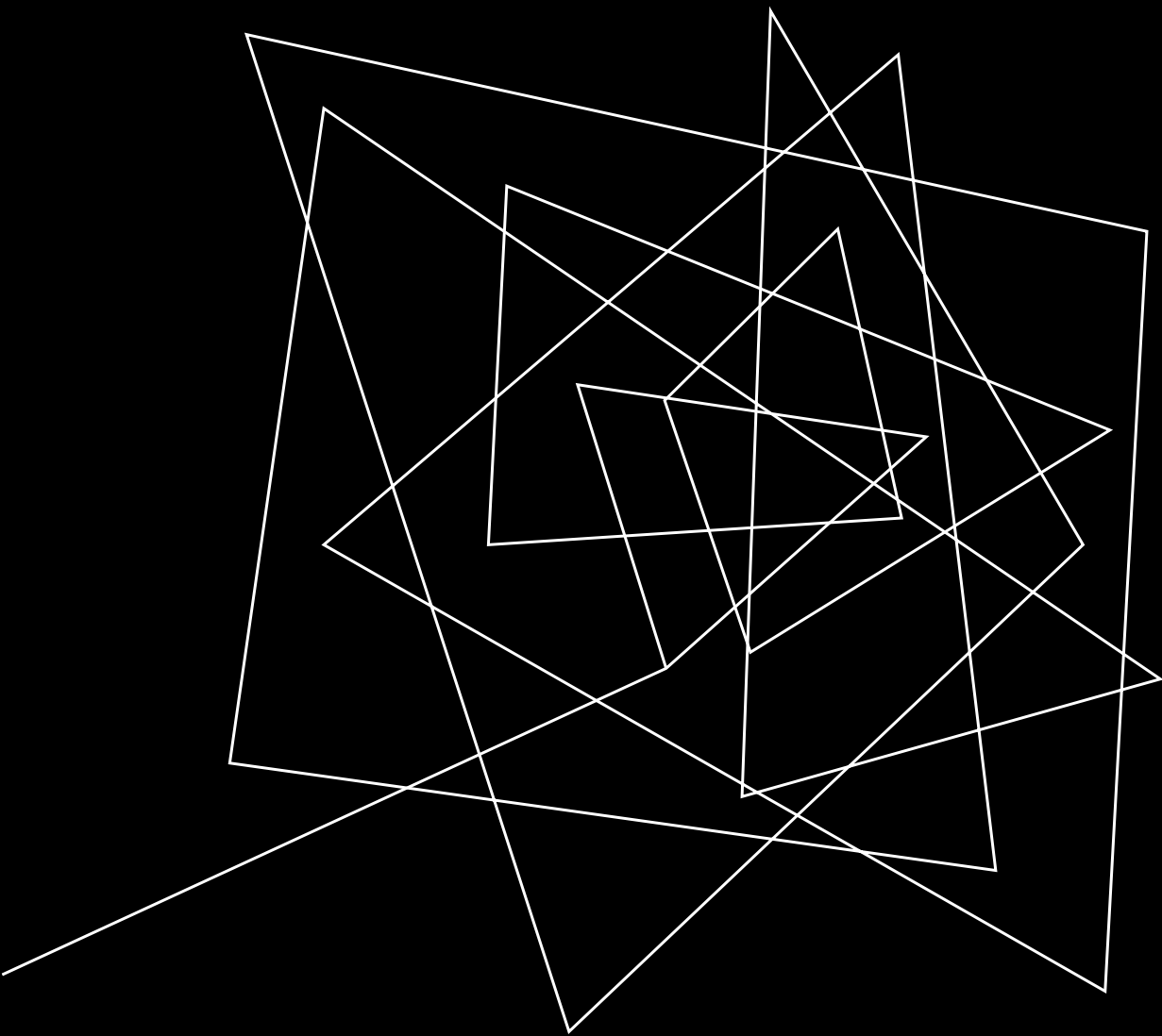
Another provider of energy product to the UK and beyond with offshore and onshore infrastructure. The same Common Factors - 5 P's applies to this industry and the contributing companies involved.

SO WHAT?

Energy supply emergencies impacts...

- Transport infrastructure
- Communication networks
- Homes & Businesses
- Government, Governance & Military
- Emergency Services
- **In short.....everything and everybody!**





NETWORK GAS
SUPPLY
EMERGENCY

NETWORK GAS SUPPLY EMERGENCY (NGSE)

Stage	Gas Deficit Emergency (GDE)	Impact on Society	Impact on Businesses
Pre-Emergency	<ul style="list-style-type: none"> Commercial actions being taken by gas industry to attempt to match supply with demand Margins Notice (MN) Gas Balancing Notification (GBN) 	<ul style="list-style-type: none"> Gas supplies will remain as normal MN and GBN will be public knowledge Lots of media interest and potential of 'scaremongering' May impact on supplies to gas fired power generators for electricity 	<ul style="list-style-type: none"> Nothing initially but recommend that organisation is 'warmed up' for taking resilience measures especially if gas supplies are fundamental to operations

MEDIA RESPONSE



UK to run out of gas TODAY:
National Grid warns of energy
crisis as snow storm Emma rages



Could the UK run out of GAS? Freezing
weather sees demand hit a SIX-YEAR
high as National Grid plunders
suppliers for more



DEEP FREEZE Power crisis as demand for gas soars and
storage warnings 'ignored'

For the first time in almost a decade National Grid has said that gas supplies may not be enough
to meet demand



Gas supply fears as cold snap continues



UK running out of gas, warns National
Grid

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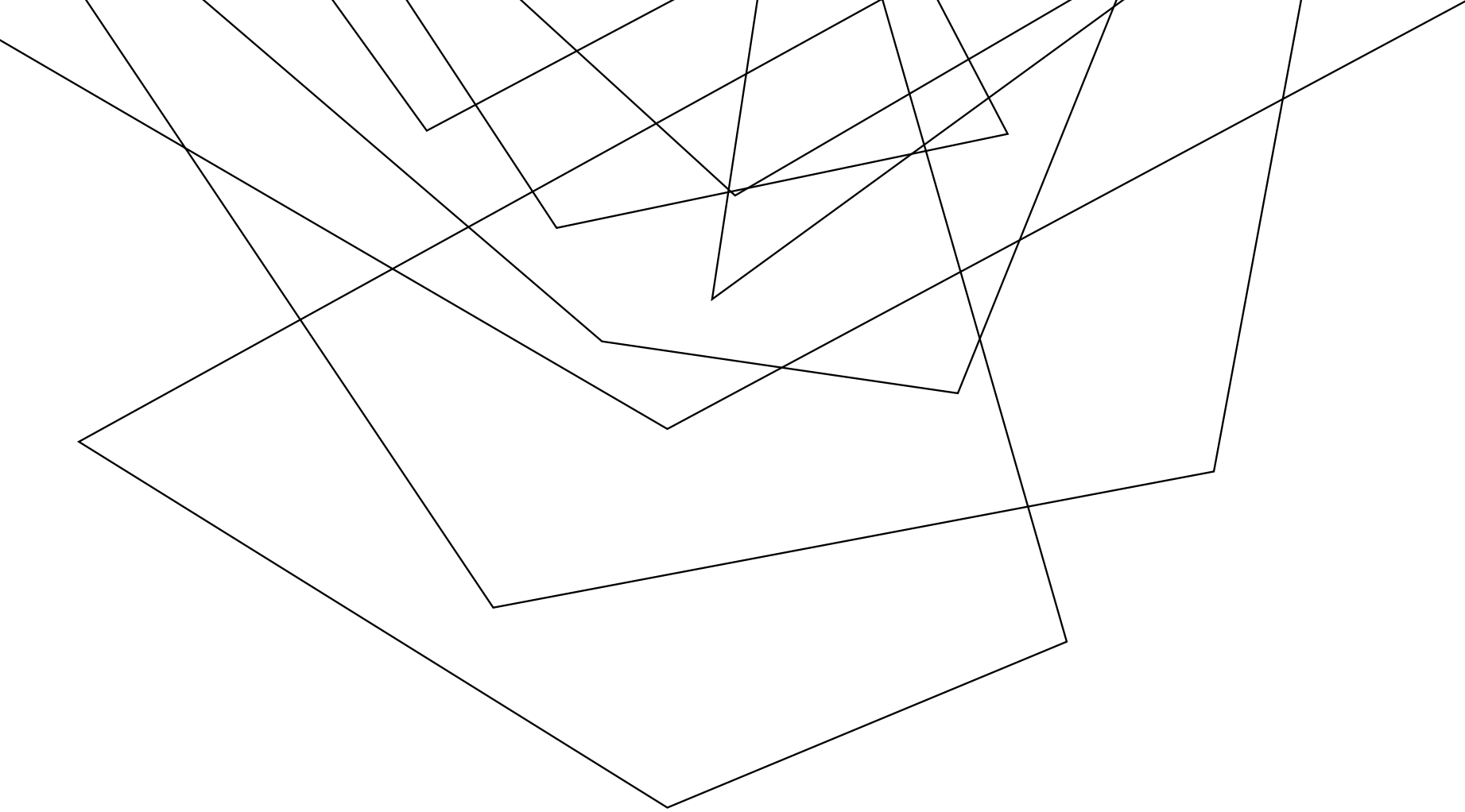
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3	<ul style="list-style-type: none"> Public Appeals Allocation & Isolation 	<ul style="list-style-type: none"> Domestic supplies will reduce or cease High potential of significant disruption to electricity supplies Vulnerable people will be at significant risk 	<ul style="list-style-type: none"> All gas supplies to industrial and commercial customers ceased Probable interruption to electricity supplies

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4	<ul style="list-style-type: none"> Restoration 	<ul style="list-style-type: none"> Assessed as taking weeks/months to fully restore gas supplies Safety concerns – public trying to self-restore 	<ul style="list-style-type: none"> Potential of loss of gas supplies for several weeks/months Potential of significant/irreparable damage having to immediately cease gas supply



EXPLORING THE KNOWNS AND UNKNOWNNS OF A REGIONAL AND NATIONAL
POWER OUTAGE

OUR INDUSTRY – NPO KNOWN AND UNKNOWN

Background

- National Risk Register – Regional Failure and Complete Failure of National Electricity Transmission System
- Worst case scenario planning

What did we do?

- Carried out an internal risk assessment / gap analysis process involving key individuals
- Developed a list of KNOWN's and UNKNOWN's. (What about the “UNKNOWN UNKNOWNNS”?!?)
- Engaged with key partners across the industry
- Hosted an industry wide workshop
- Industry Body agreed to take the lead on progressing any output actions across the key stakeholders

The result?

- Greater awareness of the level of scrutiny this topic needs to generate resilience
- List of actions around the remaining UNKNOWNNS allocated to owners and monitored through the industry body
- An increased external network
- The opportunity to speak with you here today!

AUDIENCE PARTICIPATION

Recommend that you consider these questions against the 5 P's for your business:

1. How many of them do you rely on? Which are CRITICAL for your business?
2. How would an RPO/NPO impact upon these 5 P's? How long could you continue without the CRITICAL ones you listed at Question 1?
3. How many of the PARTNERS rely on your service?
4. How sure are you of your answers (confirmed knowns v unknowns)?



PEOPLE



PROPERTY



PRODUCT



PARTNERSHIPS



PROFIT

PEOPLE - PROPERTY - PRODUCT - PARTNERSHIPS - PROFIT

WHERE ARE WE NOW?

- Increased the duration of standby power provision by closing down areas of building
- Identified key onshore services and contingencies to ensure these are in place
- Identified ability to ensure communications with offshore assets
- Refreshed our industry mutual aid agreement with European partners
- Improved understanding of the range of self sufficiency in our offshore assets (Vertical Villages / Island Communities)
- Increased awareness of vulnerabilities in availability across both our own PEOPLE profile and PARTNERS
- Eliminated some previous ‘high level planning assumptions’ - inaccurate or poorly considered when measured against specific expert input
- Established links with UK Government entities to clarify the management process of NPO/RPO
- Gained greater awareness of the consequences of an NPO, across all national infrastructures (1856!!).
- **We aren't fully prepared as yet – BUT the progress we have made have positively influenced and increased our RESILIENCE overall.**

ONE LAST THING!

I may not be there yet, but I
am closer than I was
yesterday!

Thank you!
Questions?