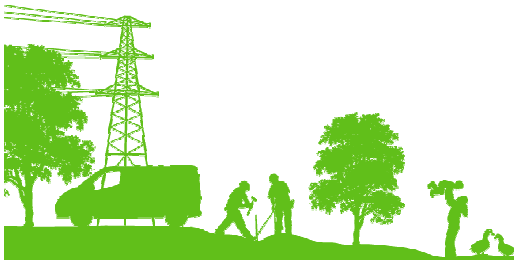


# Resilient National Infrastructure in a Climate Changed World

## Local Resilience Teams & Infrastructure Operators

### Protection through Partnership



DELIVERING TODAY,  
BUILDING FOR TOMORROW

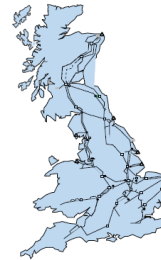
# Agenda



- Infrastructure owners & operators in context
- Civil Cont. partnership arrangements – N W England
- Partners' Contributions
  - National, Regional, Local Forums
- Examples in practice
- Current Issues
- Concluding thoughts

# Utility Industry Complexity

- Owners
- Operators
- Owner - operators
- Retailers
- Regulators
- International, National, Regional, Local players
- Sector representatives



Gas Transmission

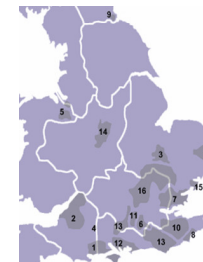
Figure 2.1: LDZs and DNs



Gas Distribution



Water & Sewerage Undertakers



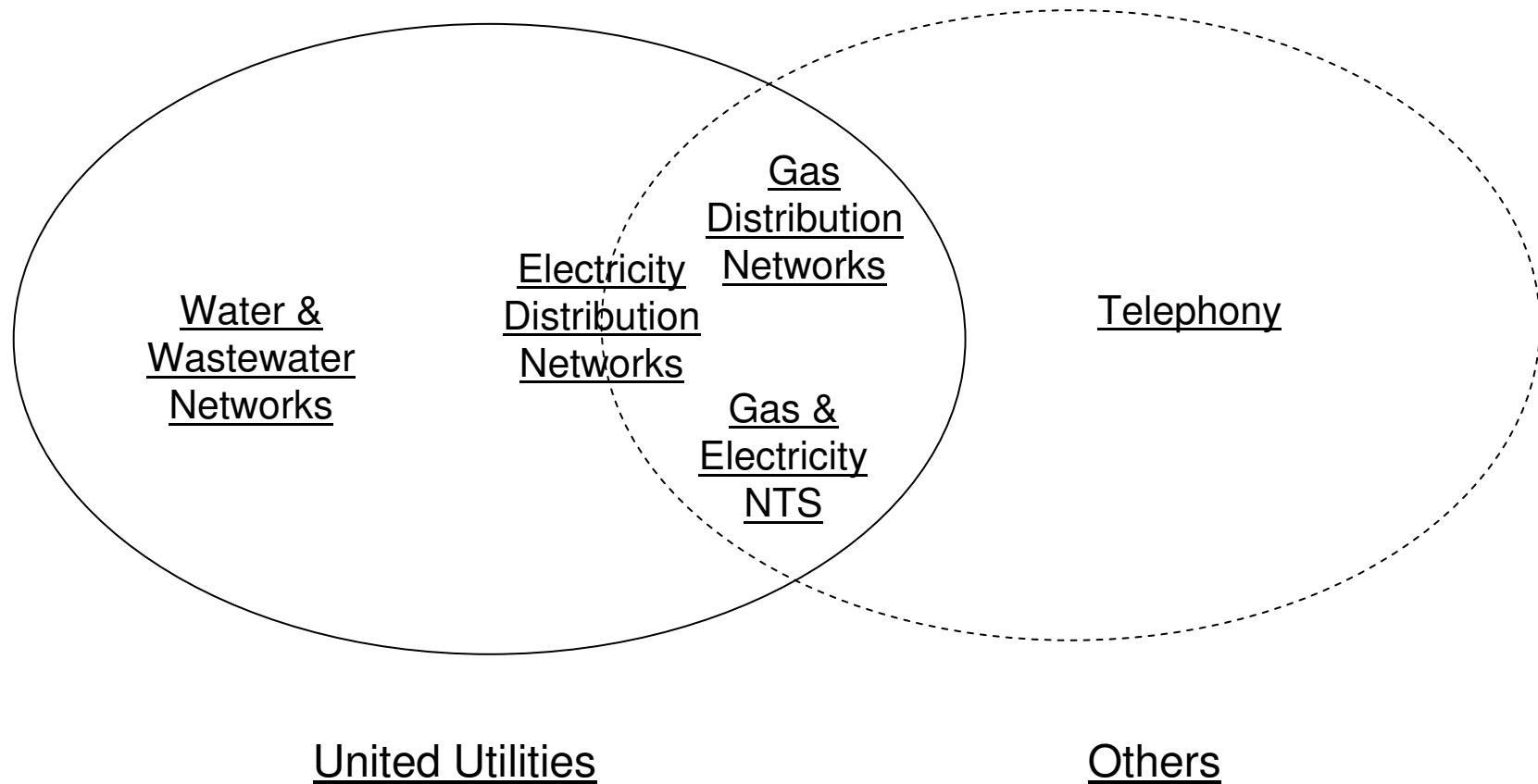
Water Only Companies

# Managing CNI – Differing Perspectives

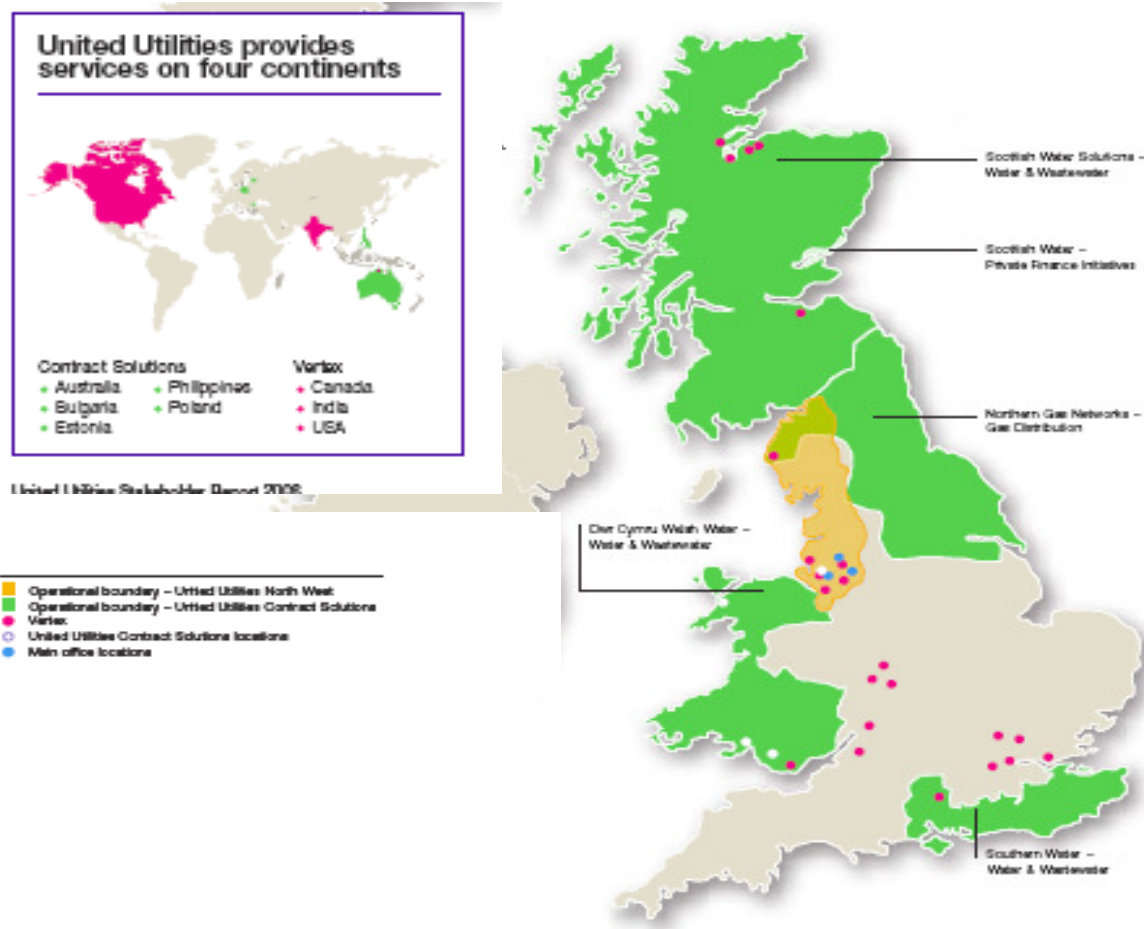
- Territory
  - National, regional, local
  - Coincident, contiguous, disparate
- Customers
  - Many or few
  - National: coherent or disparate
  - Regional: single or multi-utility
- Role
  - Single owner or JV
  - Owner and/or operator
  - Relationship with Contractors
- Accountability
  - Lead government department(s)
  - Regulator(s)
  - Cat. 1 Responders
- Resources
  - Significant: (e.g. public / private)
  - Limited: (e.g. clubs or individuals)
- Impact & consequences
  - Property damage: on / off site
  - Bus. Interruption: self / society
  - Stakeholder reaction

# No single voice

## UU's multi-utility perspective

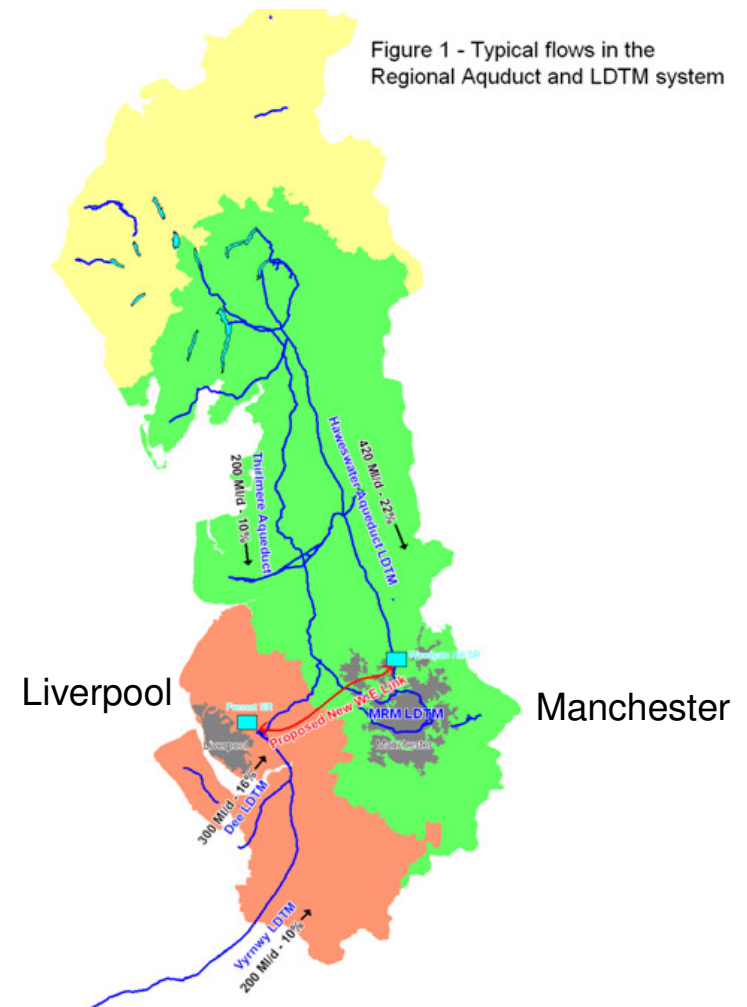


# United Utilities Group



# N W England – CCA Partnerships

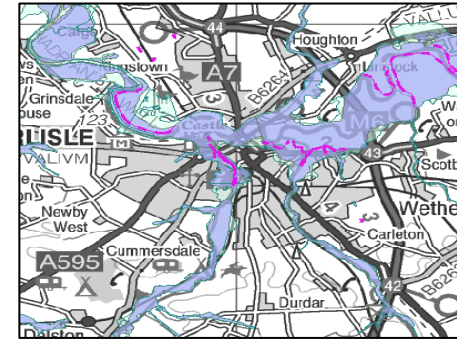
- Lead Govt. Departments
- Govt. Office for the North West
- Six County / Metropolitan Counties
- 47 Local / Unitary Authorities
- 7 million population
  - Water / Wastewater: 2.9m Customers
  - Elec. Distribution: 2.2m Customers



# Operational Assets – Stuff happens

## Water

- 138 impounding reservoirs
- 100 Water treatment works
- 450 service reservoirs
- 609 pumping stations
- 42,000km water mains



## Wastewater

- 43,000km sewers
- 600 Wastewater Treatment Works



## Electricity

- 60,000 km electricity network
- 33,000 sub stations

# Regional Forums

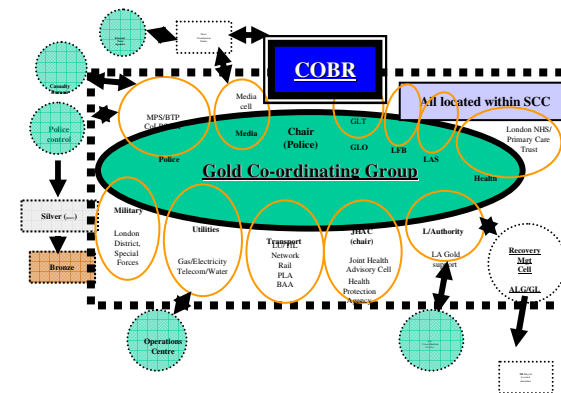
## Planning

- Govt. Office for the Region
- Regional Resilience Forum
- Local Resilience Forums (6)
- Regional Utilities Resilience Forum



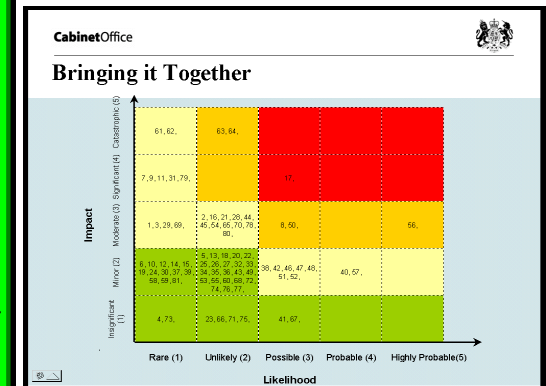
## Response & recovery

- Lead Government Department
- Strategic Coordinating Groups - Gold (6)
- Govt. Office
- Regional Civil Contingencies Committee
- Scientific & Technical Advisory Committee
- Regional Utilities Advisory Team



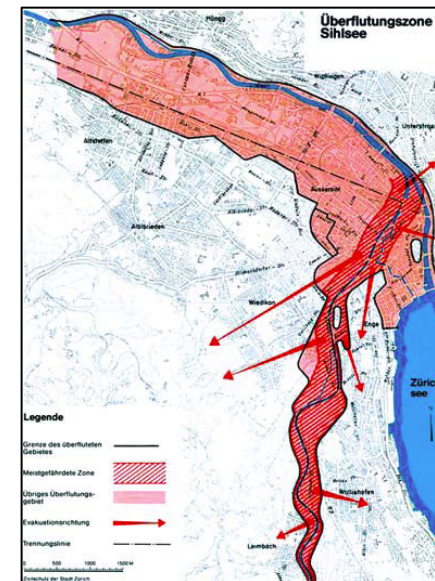
# Raising shared awareness

- Information sharing
- Managing expectations
  - Explaining infrastructure resilience
  - Identifying single points of failure
  - Intervention response options
  - Describing event consequences
- Risk assessment
- Planning response strategies
- Clarifying responsibilities
- Building trust & networks
- Testing & challenging proposals



# Example: Reservoir Inundation Planning

- National framework project
  - Defra / EA / CCS
  - UU experience
  - GONW is National lead
- 3 phase programme
  - Policies / plans / programme
  - Public engagement
  - Site specific plan development
- UU / LRF approach
  - Consensus & engagement
  - On & off site plan production
  - CNI impact
  - Education, warning & informing

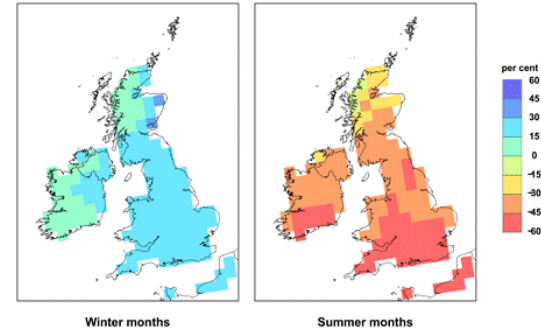


# Example: Water Supply Flood Risk Prevention



- Understanding
  - Climate change assumptions
  - Site visits & modelling
  - Risk assessment
  - Protection & response
  - Customers willingness to pay
- Prioritisation
  - Water & wastewater assets
  - Scale & response capabilities
- LRF Implications
  - Consequences
  - Key Cat. 1 exposures
  - Alternative supplies
  - Duration

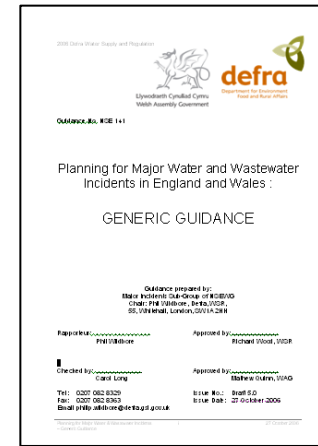
Percent change in precipitation –2080s –High Emissions scenario



Facility Type	No of Facilities affected by a 1:1000 Year Flood Event	No of Critical facilities which can not be rezoned and are cost beneficial
WTW	17	8
Boreholes	13	3
Intake Pumps	15	7
Booster Pumps	28	9
Service Reservoirs	3	3
Pipe Bridges	108	16
<b>Total</b>	<b>184</b>	<b>46</b>

# Example: Water Distribution Disruption

- Regulatory commitments
- National Guidance
- Regional Plan
  - Awareness
  - Test & challenge
  - Key exposures
- Local Response Plans
  - Techniques
  - Response times
  - Locations



## Example: Electricity Supply Disruption

- LRF briefing sessions
  - Explain the industry
  - What can & cannot be done
  - Electricity risks in context
  - Cat 1 & 2 liaison
- Power loss
  - Types
  - Consequences
- Rota disconnections
- Desktop exercises



# Local Resilience Forums

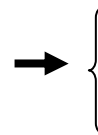
## A Category 2 Responder's Perspective

### Positives

- Efficient: Multiple relationships
- Can provide utility context on multiple topics
- Opportunity to influence local guidance & plans' development
- Trust & networking
- Reputation building

### Issues

- Utility attendance
- Constraints on data sharing
- Adequately servicing groups
  - Flooding / Reservoirs / Comms.



	Part 1	
Integrated Emergency Management	Emergency Preparedness	Emergency Response & Recovery
Anticipation	X	
Assessment	X	
Prevention	X	
Preparation	X	
Response		X
Recovery Management		X

# Regional Resilience Forum

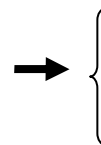
## A Category 2 Responder's Perspective

### Positives

- Fills a need
- Utilities firmly embedded
- Reflects diversity of Cat 1 issues
- Well managed
- Govt. position explained
- Significant content
  - Presentations
  - Influencing opportunities
- Trust & networks

### Issues

- Size of Group
- Volume of material emerging
- Limited utility exposure



	Part 1	
Integrated Emergency Management	Emergency Preparedness	Emergency Response & Recovery
Anticipation	X	
Assessment	X	
Prevention	X	
Preparation	X	
Response		X
Recovery Management		X

# Regional Utilities Resilience Forum

## A Category 2 Responder's Perspective



### Positives

- Well attended, open, informative
- Competition 'left at the door'
- Good outputs e.g.
  - Guide for LRFs
  - Emergency plant demos
  - Regional Utility Advisory Team
- Consensus views
- Trust & networks

### Issues

- LRF support by national Cat 2's
- 'Usual suspects' attend
- Chair represents all at RRF
- Practicability of RCCC support
  - Even via a virtual RUAT

	Part 1	
Integrated Emergency Management	Emergency Preparedness	Emergency Response & Recovery
Anticipation	X	
Assessment	X	
Prevention	X	
Preparation	X	
Response		X
Recovery Management		X

# Regional Civil Contingencies Committee

## A Category 2 Responder's Perspective

### Positives

- Exercised once (2007)
- Utilities represented
- Learning experience
- Reflects diversity of Cat 1 issues
- Trust & networks

### Issues

- Exercised once (2007)
- Unwieldy
- Single utilities rep
- Invocation?
  - How to communicate
  - Where to meet
  - Representation
- Multiple SCG / RCCC relationship

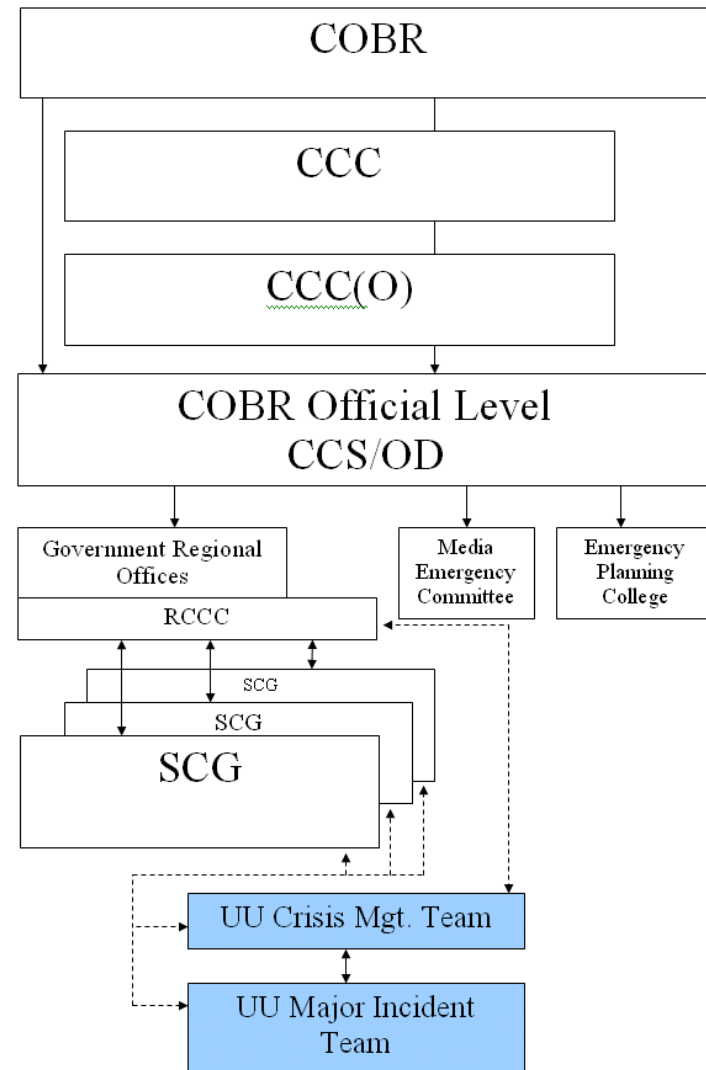
Integrated Emergency Management	Part 1	
	Emergency Preparedness	Emergency Response & Recovery
Anticipation	X	
Assessment	X	
Prevention	X	
Preparation	X	
Response		X
Recovery Management		X

→ {

# National Relationships



- Know your organisation's part
  - Identification
  - Briefing
- Resourcing
  - Training and exercising
  - Maintaining your players':
    - Awareness
    - Capabilities
- Know your organisation's:
  - Duties
  - Rights



## Some Concluding Thoughts

- There are complex CNI interdependencies
- CNI Operators understand their exposures – but not necessarily others
- Other stakeholders' awareness is dawning (post 2007)
- Good intra-sector co-operation occurs – within limits
- Inter-sector co-operation occurs – subject to security constraints
- The CCA forums achieve shared awareness & a response capability
  - But the proposals are largely untested for incidents involving multiple SCG
- Resilient shared communications is on the way
  - But will bring a number of challenges for infrequent users

# Questions



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