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# NERC Industry Webinar Spare Equipment Database

July 22, 2013 , 12PM-2PM ET

**RELIABILITY | ACCOUNTABILITY**



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- This policy requires the avoidance of any conduct that violates, or that might appear to violate, the antitrust laws.
- Among other things, the antitrust laws forbid any agreement between or among competitors regarding:
  - prices,
  - availability of service,
  - product design,
  - terms of sale,
  - division of markets,
  - allocation of customers,
  - or any other activity that unreasonably restrains competition.

- Participants are reminded that this conference call is public.
- The access number was posted on the NERC website and widely distributed.
- Speakers on the call should keep in mind that the listening audience may include members of the press and representatives of various governmental authorities, in addition to the expected participation by industry stakeholders.

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# Spare Equipment Database

Tom Burgess, Vice President and Director,  
Reliability Assessment and Performance Analysis  
*North American Electric Reliability Corporation*

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*To ensure the reliability of the North American bulk power system*

- Develop and enforce reliability standards
- Assess, measure, and investigate historic trends and future projections to improve bulk power system reliability
  - Develop solid technical understanding of the reliability risks
  - Solutions, strategies, and initiatives to enhance bulk reliability
- Analyze system events and recommend improved practices

- Industry's existing ability to address high-impact, low-frequency events
  - Coordinated Cyber/Physical Attacks
  - EMP/GMD
  - Extreme weather events
  - Pandemics
- Critical Infrastructure Strategic Roadmap
  - Identified the limited availability of spare large power transformers
    - potential issue for critical infrastructure resilience
- Expanded and quick access/availability of long lead time equipment

- Geomagnetic Disturbances, the earthly effects of solar weather, is on the NERC Top Priority issues for Bulk Power System Reliability
- Risk
  - Potential to result in irreversible physical damage to high voltage transformers
- Protection to North America's critical infrastructures
  - Strengthening and expansion of backup equipment sharing
  - NERC's Spare Equipment Database (SED)

- Help the industry's continuous efforts
  - Build critical energy infrastructure resilience
- PG&E Metcalf Substation Incident
  - Demonstrated the urgency for participation in SED
- Industry's participation
  - Demonstrates its continued commitment to BES reliability

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# Spare Equipment Database

Dale Burmester, Manager,  
Economic Planning and Strategic Projects  
*American Transmission Company*

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- SED (Spare Equipment Database)
  - Voluntary program
  - Facilitate sparing of transmission transformers and generator step-up unit transformers
    - For entities experiencing an event without enough spares
    - For a high impact, low frequency (HILF) event
- User data is protected
  - Via mutual confidentiality agreement
- Industry-wide, uniform, on-line support tool
  - Transmission Owners (TOs)
  - Generator Owners (GOs) entities

- Spare Equipment Database Task (SEDTF)
  - Planning Committee (PC) Initiated (2010)
  - ESCC's Critical Infrastructure Protection Roadmap
  - Action item in NERC-DOE June 2010 HILF report, and NIAC November 2010 report to U.S. President
- Uniform Approach:
  - Consistent reporting collecting, storing, and distributing information on CONFIDENTIAL long-lead time BES spares
- Supportive:
  - SED is an independent system
  - Not intended as a replacement for existing pooling or bilateral equipment sharing programs.

- High voltage power transformers are long-lead time to manufacture items (~6 months).
  - They are extremely expensive and can cost up to several million dollars.
  - Transformers require large storage and care.
- Supports evaluations to determine level of spares required for normal equipment failures.
- Support evaluations for High Impact, Low Frequency (HILF) events.
- Responding to system emergencies
- Bridge to connect entities

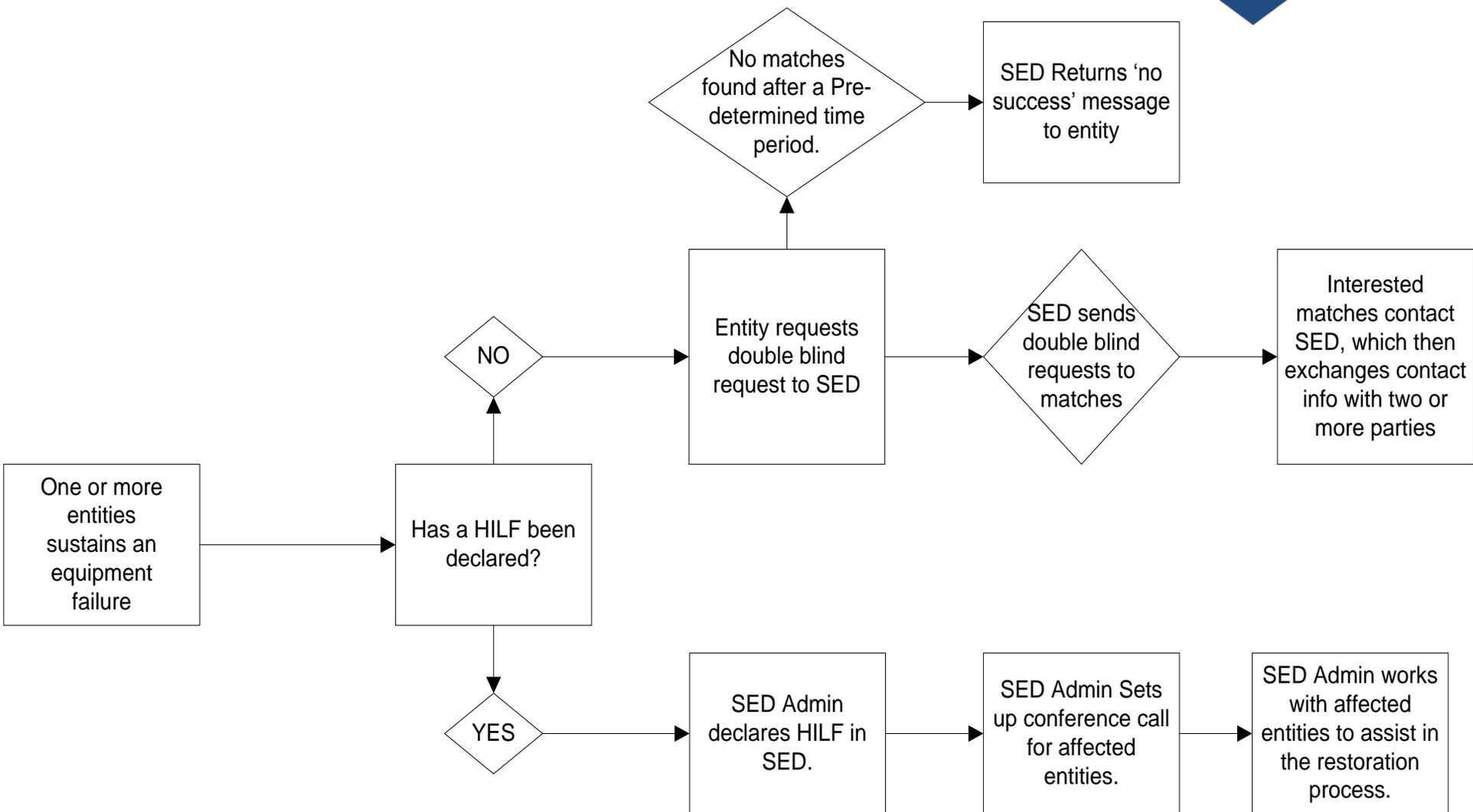
## SED Participation Benefits:

- Allows entities to confidentially seek spares.
- Faster restoration after event.
- Provides for faster entity cooperation.
- Entities contact SED instead of everyone.
- Balances risk mitigation and freedom
  - Voluntary participation.
  - Double-blind requests.
  - Entities not forced to commit spares.

- Transmission Owners and Transmission Operators with transmission transformer :
  - 100 kV+ low side rating
  - 100 MVA+ maximum nameplate rating (total of 3 phases)
- Generator Owners and Generator Operators with Generator step-up unit:
  - 100 kV+ high side voltage
  - 75 MVA+ maximum nameplate rating (total of 3 phases)

- The submitted transformer data must be kept secure/confidential
- All participants sign a mutual confidentiality agreement to safeguard data
- All searches in system performed in a double-blind process

- Entities input contact information
- Entities input information on spare equipment to facilitate searching that meets the criteria mentioned below
  - Transmission Owners and Transmission Operators with transmission transformer :
    - 100 kV+ low side rating
    - 100 MVA+ maximum nameplate rating (total of 3 phases)
  - Generator Owners and Generator Operators with Generator step-up unit:
    - 100 kV+ high side voltage
    - 75 MVA+ maximum nameplate rating (total of 3 phases)



## SED

- Does not require spares to be allocated to system
- Spares not required to be shared
- Data not shared between entities
- Activated for HILF or regular sparing event
- Entities within STEP may participate within SED
- Transmission and GSU transformers
- 15 participants
- Voluntary

## STEP

- Requires spare allocation to STEP program based on formula
- Spare allocation required to be sold after “triggering event”
- Available to all members
- Activated by “triggering event”
- Entities within SED may participate within STEP
- Transmission Transformers only
- 50 participants
- Voluntary

- Open to all registered NERC:
  - Transmission Owners
  - Transmission Operators
  - Generator Owners
  - Generator Operators
- For more information or to participate, please contact: [SEDRegistration@nerc.net](mailto:SEDRegistration@nerc.net)



## Questions and Answers

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# GridEx II and SED

Grid Security Exercise 2013 and the Spare Equipment Database

Bill Lawrence, Manager,  
Critical Infrastructure Protection Awareness  
*North American Electric Reliability Corporation*

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- GridEx II objectives
- Distributed Play vs. Executive Tabletop
- Timeline for the exercise with SED discussion

## GridEx II Objectives

1

*Exercise the current readiness of the electricity industry to respond to a security incident, incorporating lessons learned from GridEx 2011*

2

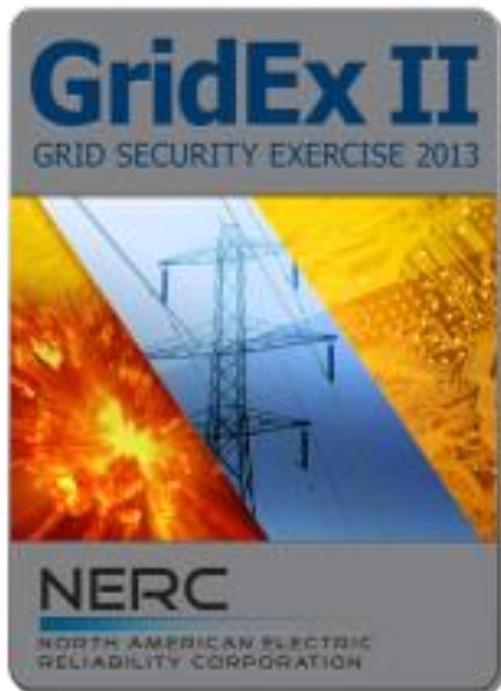
*Review existing command, control, and communication plans and tools for NERC and its stakeholders*

3

*Identify potential improvements in physical and cybersecurity plans, programs, and responder skills*

4

*Explore senior leadership policy decisions and triggers in response to a coordinated cyber and physical security event of national significance with long-term grid reliability issues*



**November 13-14, 2013**

**Executive  
Tabletop**

## Distributed Exercise (2 days)

Players across the stakeholder landscape will participate from their local geographies



## Exercise Control

Oversees exercise play & facilitates interactions between exercise modules

## Executive Tabletop\* (1/2 Day)

Discussion-based construct engages senior decision makers in assessing distributed play and exploring policy decisions

### Executive TTX



Exercise Play  
Morning of November  
13, 2013

Exercise Play  
Around Noon  
November 14, 2013

Hotwash  
Afternoon of November  
14, 2013

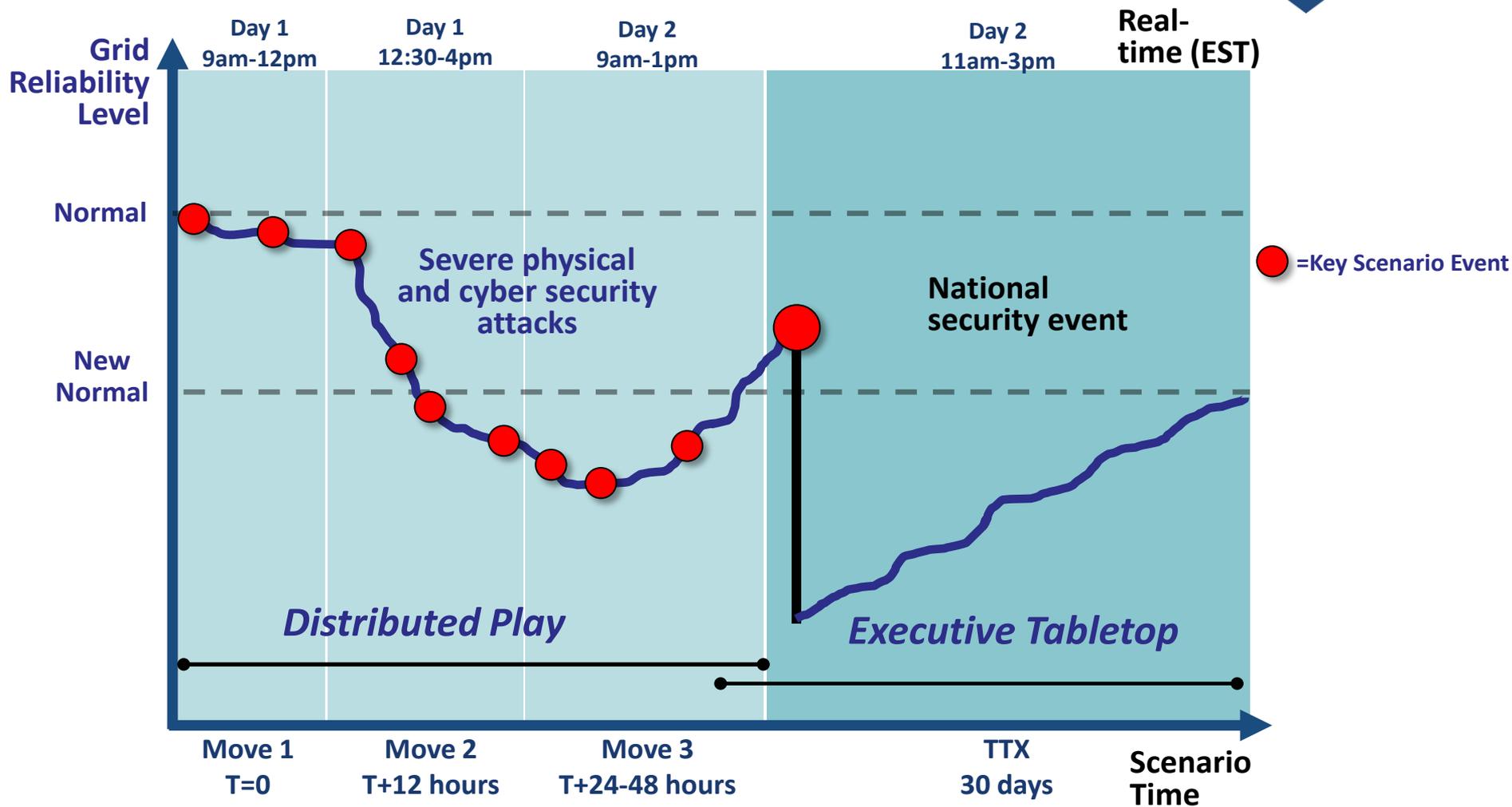
Executive Tabletop Discussion  
Afternoon of November 14,  
2013

**Injects and response actions  
will prompt policy-level discussions**

## GridEx II Distributed Play Scenario

- Simulated scenario injects will prompt exercise participants to:
    - Detect the incident(s)
    - Assess the situation
    - Take the actions needed to mitigate the impact and restore power
  - The scenario will include:
    - A series of coordinated cyber attacks
    - Physical attacks against “several” electric substations across the United States
    - HV transformers destroyed, sufficient spares not available from affected utilities
    - Repairs expected to take a few weeks and perhaps months
- Will drive policy-level discussions**
-

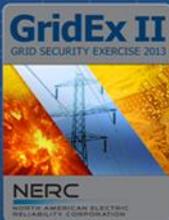
# Scenario Escalation Timeline



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## GridEx II Registration Site



**GridEx II**  
GRID SECURITY EXERCISE 2013

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**WHAT:** NERC's Second Grid Security Exercise

**WHEN:** November 13-14, 2013

**WHERE:** Players will participate from their normal places of business in a geographically distributed format

**WHY:** To exercise the response to a disruptive, coordinated physical and cyber event

**WHO:** NERC Registered Entities, Government Agencies and other relevant bodies across NERC's eight regions

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# Questions and Answers



# SPARE EQUIPMENT DATABASE

SOUTHERN COMPANY'S PERSPECTIVE

Bob Hair  
Transmission Substation Design &  
Maintenance Support  
*Southern Company Services*

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Transmission

# SOUTHERN'S GOALS & STRATEGY



- *Shape Energy Policy*
  - *Engage in Constructive External Relationships*
  - *Advocate for Strong Industry Partnerships*
  - *Provide Leadership in the Development of Industry Policy and Standards*
- *Preparedness*
  - *Ensure readiness for storms, physical and cyber threats*

# DATABASE PARTICIPATION



- Strongly Believe in Voluntary Participation
- Comfortable with Mutual Confidentiality Agreement
- Other GMD Involvement

# DATA ENTRY



- Utilized Two Engineers to Input Data
  - Georgia Transmission
  - Alabama, Gulf, Mississippi Transmission, and All Generation
- 62 Units Total
  - 37 Transmission Units
  - 25 GSU's
- Engineers preferred to enter data one unit at a time



# Questions and Answers

- [Special Report – Spare Equipment Database](#)
- [Spare Equipment Database Brochure](#)
- [Mutual Confidentiality Agreement](#)

- Contact info:
  - Email: [SEDRegistration@nerc.net](mailto:SEDRegistration@nerc.net)
  - To learn more about Spare Equipment Database , contact Naved Khan at [Naved.Khan@nerc.net](mailto:Naved.Khan@nerc.net), Phone: (404) 446-9730
- Registration and contact information
- Sign Mutual Confidentiality Agreement, which can be found at [http://www.nerc.com/docs/pc/sedtf/Confidentiality\\_Agreement.pdf](http://www.nerc.com/docs/pc/sedtf/Confidentiality_Agreement.pdf).
- Once signed, submit agreement to [SEDRegistration@nerc.net](mailto:SEDRegistration@nerc.net)
- After submission, NERC staff will contact you with next steps. For further information related to SED program, please visit [http://www.nerc.com/comm/PC/Pages/Spare-Equipment-Database-Workning-Group-\(SEDWG\)-2013.aspx](http://www.nerc.com/comm/PC/Pages/Spare-Equipment-Database-Workning-Group-(SEDWG)-2013.aspx)



## Questions and Answers