



# EARTH EX 2017

Emergency All-Sector Response to Transnational Hazards Exercise

EARTH EX™ 2017



# EARTH Ex Concept

- EARTH Ex 2017 is a come as you are opportunity for executive and senior operational managers in all critical lifeline sectors to review, develop and extend the policies and procedures for responding to a long duration power outage.
- EARTH Ex 2017 is a widely distributed exercise event, using new electronic exercise tools, advancing over three phases. It enables an examination of the response and restoration decisions and actions lifeline sectors will face during a long duration power outage.
- EARTHEX 2017 supports in-depth discussion on roles, responsibilities, essential decision making, and communications requirements.

EARTH EX™ 2017



# EARTH Ex Over Arching Objective

Improve community resilience to long duration power outage events through cross sector exercises.

# EARTH Ex 2017 Supporting Objectives

- Decision making and initial actions
- Developing and processing situational awareness
- Developing communications concepts and information flow to support a successful response to a long duration power outage

# EARTH Ex Organizational Focus Areas

- Testing Existing Plans, Policies, and Playbooks
- Roles and Responsibilities
- Setting Priorities for Restoration
- Conducting Assessments
- Determining Priorities
- Sharing Information

# EARTH Ex Operational Lanes

- **Electric** (Generation, Transmission, Distribution), Black Start Decisions
- **Water** and Waste Water
- **Oil** and Natural **Gas**
- **Federal Government** – Energy, Critical Infrastructure, Emergency Mgt.
- **State Government** – Emergency Management, National Guard, Health
- **Regulatory**
- **Non-Governmental Organization** – Volunteers Active In Disasters
- **Citizen Preparedness** – Understanding Individual and Family Preparedness
- **NISC** – Sharing Information and Situational Awareness
- **Private Sector**

# EARTH Ex 2017 Exercise Phases

## Phase 1 \ Day 3 of a Widespread Power Outage/No Solution

Electric Subsector has completed an initial assessment and determined that essential components of generation and substation equipment are non-functioning and cannot be restored. Voltage collapse has occurred. All sites that do not have an onsite backup power generation capability with more than 72 hours of on site diesel fuel are offline. Millions are without power.

# EARTH Ex 2017 Exercise Phases

## Phase 2 \ Day 4-6 Widespread Power Outage/Critical Decisions, Assessments & Actions

Electric Subsector must begin the detailed assessment of components at generations sites and all substations to determine component impact and status. All elements of generation, transmission and distribution have been impacted. All emergency management elements are online due to cascading impacts from the extended power outage. No restoration time estimate is available until Day 6 assessments are concluded. Alternate communications, resource prioritization (spare tire – published in April), manpower, tools for reliability and management are needed.



# EARTH Ex 2017 Exercise Phases

## Phase 3 \ Day 15+, Widespread Power Outage, Black Start, Communications, Cross Sector Coordination

Electric Subsector has completed the detailed assessment and a Black Start cranking path must be determined and assembled. Public prioritization of critical lifeline sectors, medical, water system, continuity of government functions and communications has been supplied.

# EARTH Ex Schedule

<b>24 Feb</b>	Friday	EEX	<b>EARTH Ex IPC Teleconference</b>	<b>Initial Planning Conference</b>
<b>16 Mar</b>	Thursday	EEX	<b>Inject Formats Released</b>	<b>All Sector Coordinators</b>
<b>20 Apr</b>	Thursday	EEX	<b>EARTHEX Middle Planning Conference</b>	<b>Teleconference</b>
<b>15 May</b>	Thursday	EEX	<b>EEX- Final Planning Conference</b>	<b>Webinar</b>
<b>26 Jul</b>	Wednesday	EEX	<b>EEX Final Alignment and Coordination</b>	<b>All Sector Coordinators</b>
<b>17 Aug</b>	Thursday	EEX	<b>EEX Rehearsal</b>	<b>All Sector Coordinators</b>
<b>23 Aug</b>	Wednesday	EEX	<b>EEX Target Date 1</b>	<b>All Staff and Sectors</b>
<b>24 Aug</b>	Thursday	EEX	<b>EEX Target Date 2</b>	<b>All Staff and Sectors</b>



Registration for EARTH Ex  
2017 will open 1 May, 2017.



# EARTH Ex Design Elements

- EARTH Ex is designed to be delivered virtually using electronic tools.
- The exercise delivery mechanism – the Battle Rhythm Manager (BRM)- will support multiple lanes of play and multiple phases of the exercise.
- The EARTH Ex 2017 (BRM) will be available for play on the morning of August 23rd.

# EARTH Ex Sector Components 1

- Each Exercise Lane (Sector) will receive:
  - Framing Inject
  - Exercise Objective
  - Specific Situational Awareness Injects
  - Advancing Injects
- Each Lane will develop specific responses to:
  - Discussion Questions
  - Consideration Items
- Each Phase will end with specific phase response questions

# EARTH Ex Sector Components 2

- Each Exercise Lane (Sector) will receive:
  - Cross Sector Status to provide 360 degree perspective

# EARTH Ex 2017 Assumptions

- All of the information to drive the exercise discussion will be provided
- Organizations will be encouraged to apply their own internal policies and procedures to develop solutions and responses to the exercise problem
- Access to the internet will be available
- Each organization will have at least 1 person to serve as a facilitator/recorder
- Each organization will be internally assessed

# EARTH Ex IPC Sector Objectives

- By Sector
  - Prioritize objectives (2/3 max) (time limited)
  - Objectives should be stated in bullet format
  - Objectives should address overarching objectives
  - Objectives should support EIS Council Sector playbook elements
  - Final objectives will serve as the guide for advancing injects (MPC)
  - Each phase will last approximately an hour
- Note: Senior Executive and Senior Operational Decision Makers

# Electric Sector Objectives

## Phase 1 (Internal Assessment)

- Impact Analysis
- Internal Coordinative Activities
- Operational Challenges (Internal)



## Phase 2 (External Coordination & Assessment)

- Critical Skills Identification
- Essential Task Execution
- Multi-directional Coordination (External)



## Phase 3 (Solution and Execution Coordination)

- Modified Restoration Strategy
- Crisis Communications
- Coordination and Alignment



# EARTH Ex Sector Objectives Chart 1 – Discussion/Example

**Notional Scenario:** A region-wide power outage caused by cyber attack to the SCADA and PLC's at nearly 60% of the substations and generation stations causing damage to sensitive control systems and instrumentation required to establish and maintain grid operations.

## Phase 1 – Day 3 of the Cyber Attack

Sector Element	Objective 1	Objective 2	Objective 3
Generation	Assessment	Manpower Avl/Type	Est Priority/Initial Actions
Transmission	Assessment	Manpower Avl/Type	Est Priority/Initial Actions
Distribution	Assessment	Manpower Avl/Type	Est Priority/Initial Actions



**What happened, what resources are available, what are the first steps to be taken?**



# EARTH Ex Sector Objectives Chart 2 – Discussion/Example

**Notional Scenario:** Earlier in the week a cyber attack to the SCADA and PLC's at nearly 60% of the substations and generation stations caused a wide spread power outage. At this point no one has claimed responsibility for the attack. Only those locations operating on backup power systems have power. Fuel is in critical, short supply. Nearly 40 % of the urban water and waste water systems are offline. Nearly 85% of the rural water and waste water systems are offline. All efforts are needed to energize the critical lifeline sectors. Medically fragile, home bounds deaths are starting to occur.

## Phase 2 – Days 4- 6 of the Cyber Attack

Sector Element	Objective 1	Objective 2	Objective 3
Generation	Initial Decisions	Initial Information Req	Prioritization/Restart
Transmission	Initial Decisions	Initial Information Req	Prioritization/Restart
Distribution	Initial Decisions	Initial Information Req	Prioritization/Restart

# EARTH Ex Sector Objectives Chart 3 – Discussion/Example

**Notional Scenario:** Two weeks ago a cyber attack to the SCADA and PLC's at nearly 60% of the substations and generation stations caused a wide spread power outage. At this point no one has claimed responsibility for the attack. Communities are at risk and all critical lifeline sectors are responding. The federal government and state government are working to streamline solutions in partnership with private sector elements. However, critical components are in short supply. The Unified Command made the decision to prioritize grid segments, implement **Black Start** protocols and triage communities as the Electric Sectors struggle to restore electricity.

## Phase 3 – Day 15 of the Cyber Attack

Sector Element	Objective 1	Objective 2	Objective 3
Generation	Supply Chain Prioritization	Crisis Communications	Cross Sector Priorities
Transmission	Supply Chain Prioritization	Crisis Communications	Cross Sector Priorities
Distribution	Supply Chain Prioritization	Crisis Communications	Cross Sector Priorities



Developing and implementing a solution, communicating with essential partners (internal and external), establishing priorities of effort



# EARTH Ex 2017 Opportunities

- Assessment (Manpower/System Impact)
- Back Up Power Requirements
- Setting and Communicating Priorities
- Resource Mobilization – Standing Orders
- Resource Prioritization
- Initial Action Planning
- Key Decisions
- Developing Situational Awareness

# EARTH Ex Objective Discussions by Lane

- **Electric** (Generation, Transmission, Distribution), Black Start Decisions
- **Water** and Waste Water
- **Oil** and Natural **Gas**
- **Federal Government** – Energy, Critical Infrastructure, Emergency Mgt.
- **State Government** – Emergency Management, National Guard, Health
- **Regulatory**
- **Non-Governmental Organization** – Volunteers Active In Disasters (VOAD)
- **Citizen Preparedness** – Understanding Individual and Family Preparedness
- **NISC** – Sharing Information and Situational Awareness
- **Private Sector**

# EARTH Ex Due Outs – 10 March 2017

- Each Sector will provide the objectives and initial responses to the Battle Rhythm Manager Spreadsheet template.
- Inject Formats Released – 16 March
- BRM Workbooks - Due 1 May

# EARTH Ex 2017

**Emergency All-sector Response to  
Transnational Hazards Exercise**

August 23, 2017

## Discussion

