**Agenda**

**Day 1 (1200 – 1700)**

12:00 – 12:10 Introduction

12:10 – 15:00 Black Start Theory (Kelly Blackmer)

15:00 – 15:10 Break: Separate into rooms for Simulator Training

15:10 – 16:00 Black Start Simulator Training (ERCOT Instructors)

16:00 – 17:00 Areva Simulator Training (All Instructors) Break as needed

**Objectives**

**Day 1 (1200 – 1500)**

* Identify the roles of ERCOT and the TOs in the restoration process.
* Identify guidelines for Black Start generator control during system restoration.
* Identify the frequency levels at which generation and firm load will trip according to the Operating Guides.
* State the importance of restoring off site power to nuclear facilities during restoration.
* Identify the causes of losing Islands during restoration.
* Identify guidelines for energizing transmission equipment and load.
* Identify information that should be communicated to ERCOT from QSEs and TOs.
* Identify information that should be communicated between TOs and QSEs
* Identify the importance of the transmission operator matching voltage, frequency and phase angle when tying islands together.
* Identify the importance of proper communication during system restoration.

**Agenda**

**Day 2 (0700 – 1700)**

0700 Assemble in assigned classrooms for simulation and log into computers.

(Breakfast provided)

0700 – 1200 ERCOT Black Start Simulation in individual rooms

1200 – 1230 Break

1230 – 1700 ERCOT Black Start Simulation in individual rooms (continued)

**Agenda**

**Day 3 (0700 – 1200)**

0700 Assemble in assigned classrooms for simulation and log into computers.

(Breakfast provided)

0700 – 1200 ERCOT Black Start Simulation in individual rooms

1200 – 1300 Lunch

1300 – 1400 ERCOT Black Start Simulation critique and wrap-up.

**Simulation Objectives**

**Day 2 and 3**

**ERCOT OPERATORS:**

* Demonstrate ERCOT system restoration using the ERCOT simulator.
* Demonstrate proper communication procedures during the restoration process.
* Demonstrate ability to perform the functions of the RC according to the ERCOT Black Start Plan.
* Observe restoration progress of the restoration and give assistance to the QSE and TOP where necessary.
* Assume control of combined islands from TDSPs.

**TDSP:**

* Demonstrate ERCOT system restoration using the ERCOT simulator.
* Demonstrate proper communication procedures during the restoration process.
* Communicate with QSE and give instruction concerning voltage profiles needed from the generation resources during restoration.
* Communicate with QSEs and give instruction concerning mw output for generation resources during the restoration exercise.
* Control voltage on the transmission system during the restoration process using capacitor banks, reactors and generation resources.

**QSE:**

* Demonstrate ERCOT system restoration using the ERCOT simulator.
* Demonstrate proper communication procedures during the restoration process.
* Demonstrate control of generation resources during restoration.
* Communicate with TDSP to determine voltage profiles needed from the generation resources during restoration and follow TDSPs instructions.
* Communicate with the TDSP to determine the needed mw output for generation resources during the restoration exercise.
* Maintain frequency to a level above 59.4 and below 60.