

## Agenda

# Eighth Annual Monitoring and Situational Awareness Conference – Session 3

Theme: Energy Management System Reliability and Resiliency in the Pandemic

November 10, 2020 | 1:00 – 3:00 p.m. Eastern

### **Managing COVID-19 Impacts on Transmission Operation & August 10, 2020 ITC Midwest Derecho Event**

- Darrel J. Yohnk, ITC

### **AEP Transmission Operations Response to COVID-19**

- Phil Hoffer, AEP

### **Collaborative Tools during COVID-19**

- Rob Adams, FPL

### **Session Summary**

- Matthew Lewis, NERC, Manager of Event Analysis

# Speaker Biographies<sup>1</sup>

## Eighth Annual Monitoring and Situational Awareness Conference – Session 3

Theme: Energy Management System Reliability and Resiliency in the Pandemic

November 10, 2020

### Darrel J. Yohnk

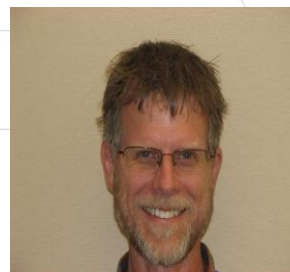


Darrel Yohnk is Director - Real Time Operations for ITC Holdings Corp., which owns, operates, maintains, plans and builds the electrical transmission systems located in **Michigan and six other**

**states**. Mr. Yohnk has served in this role for the past ten years and is responsible for transmission system operation, outage scheduling and operator training associated with all ITC operating companies.

Prior to this role, Mr. Yohnk had various responsibilities in training, outage scheduling, and real time operations of the interconnected transmission system for over 16 years and, in addition, held roles in overhead and underground transmission line design and maintenance for nine years. Mr. Yohnk has been active in industry venues including MISO, PJM, and SPP operating committees, subcommittees, and working groups, NERC standards drafting team, and the NERC Operating Committee. Mr. Yohnk holds a B.S. in Electrical and Computer Engineering from the University of Wisconsin-Madison, is a licensed Professional Engineer, and holds NERC certification at the Reliability Coordinator level.

### Phil Hoffer



**Phil Hoffer** has been with AEP Transmission Operations since 1986. He has a BSEE from The Ohio State University and is a registered Professional Engineer in the state of Ohio.

He is currently the manager of EMS Applications at AEP. His group is responsible for the state estimator and contingency analysis systems and maintaining the operational model of the transmission system network. In addition, a newly created shift engineering position under Phil will provide 24x7 on-site support for the State Estimator and TOP-010 compliance.

### Rob Adams



**Rob Adams** is the Sr. Director of Grid Control Systems for Power Delivery at Florida Power & Light Company (FPL). Mr. Adams directs the real-time operation and development of FPL's grid control systems (GCS) and operational technology systems to deliver highly-available, reliable and secure applications and systems for FPL's Power Delivery business unit. He

<sup>1</sup> Biographies are listed in order of presentation.

oversees a team in provisioning operational technology platforms for the FPL's transmission and distribution control centers and the Power Delivery Performance & Diagnostic Center (PDDC). His team ensures FPL and NextEra Energy, Inc. alignment and implementation of required North American Reliability Corporation (NERC) Reliability Standards in relation to Critical Infrastructure Protection (CIP) and cybersecurity of FPL's grid control systems. Mr. Adams was named to this position in October 2016.

Prior to his current role, Mr. Adams led the team responsible for the business unit's workload planning, scheduling and resource strategy. He has also led multiple large-scale system implementations, most recently the implementation of SAP Financials and Supply Chain management applications across the enterprise. Overall, Mr. Adams has over 32 years of experience in the electric industry and has held other notable roles such as Director of Resource & Performance Management for Power Systems. Rob is a certified Six Sigma Black Belt.

of Science in Applied Physics from the Air Force Institute of Technology. You can learn more about Matt's professional experiences at his [LinkedIn](#) page.

## Matthew C. Lewis

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**Matthew Lewis** joined the North American Electric Reliability Corporation (NERC) on March 24, 2014 and currently serves as the Manager of Event Analysis and previously served as the Manager of Training and

Education. He retired with over 25 years of service as a U.S. Army officer. Matt served in a variety of leadership and staff positions in the fields of operations, special weapons effects and response, technical intelligence, and joint exercises/training. During his military service, he participated in combat tours in Desert Storm and Iraqi Freedom. Matt has a Bachelor of Science in Physics from the University of Arkansas at Little Rock and a Master



# MANAGING COVID-19 IMPACTS ON TRANSMISSION OPERATION

*Darrel J. Yohnk*  
*Director, Real Time Operations*  
*November 10, 2020*



**FOR THE GREATER GRID**

# ITC PROFILE

**16,000 MILES**  
of transmission lines

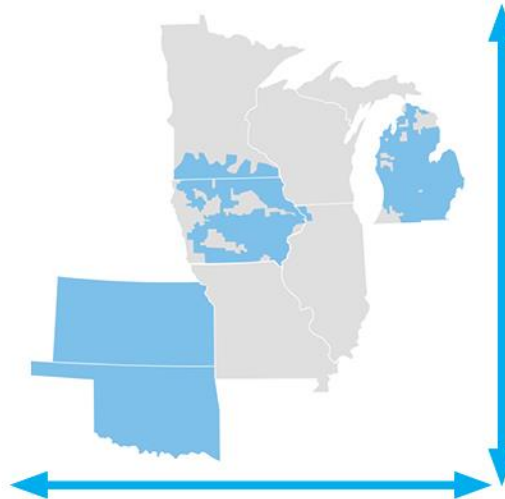


**565** stations and substations



**90,000-SQUARE MILE**  
Service Territory

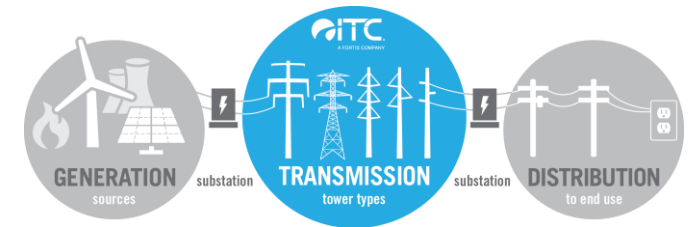
Michigan  
Iowa  
Minnesota  
Illinois  
Missouri  
Kansas  
Oklahoma



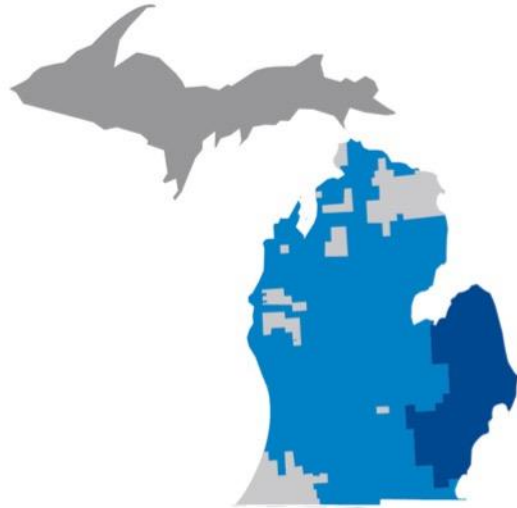
**700+** employees, and  
**1,000+** skilled labor contractors

Member of **4 RTOs**

Sole focus on transmission



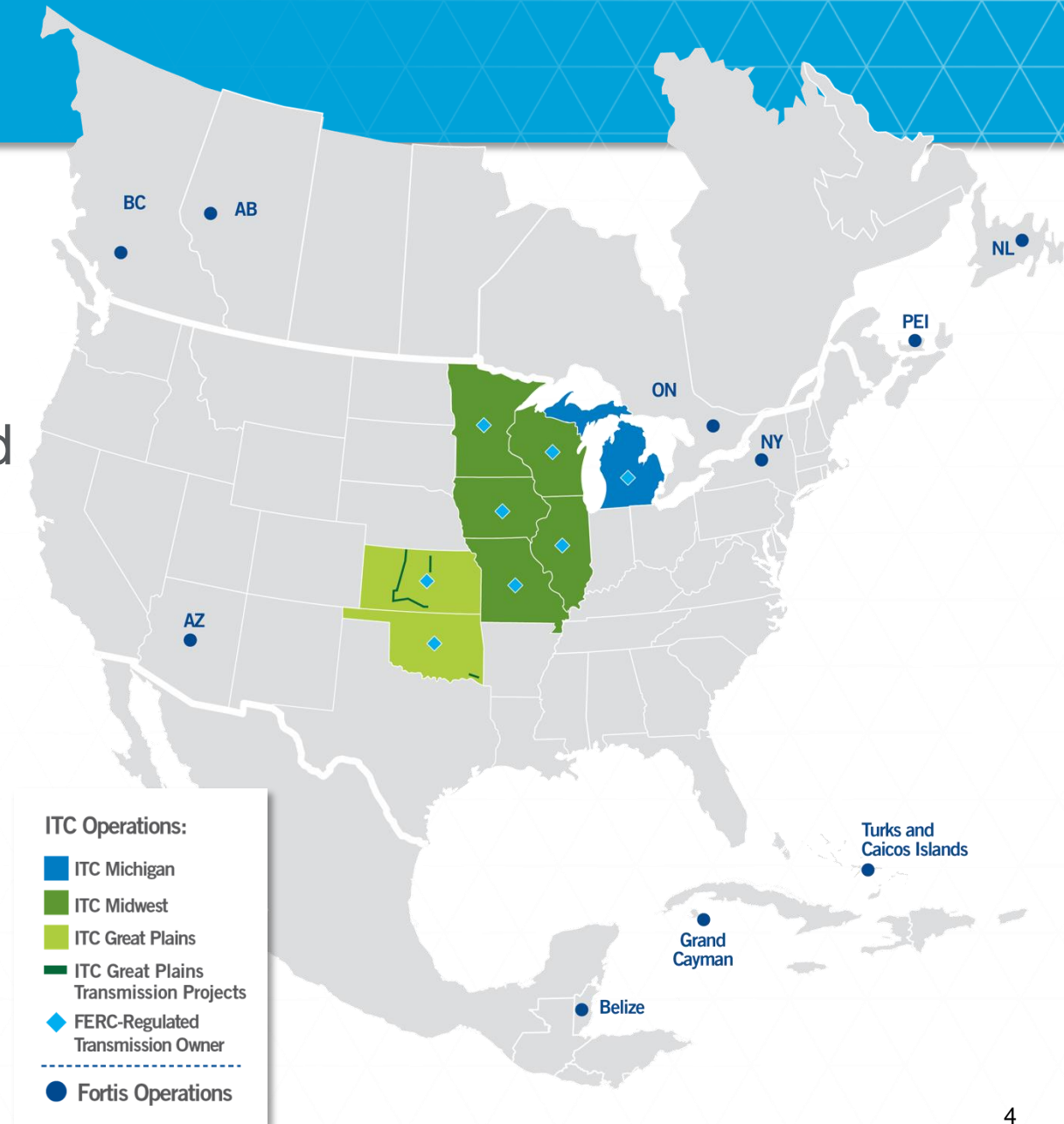
# ITC SYSTEM OVERVIEW



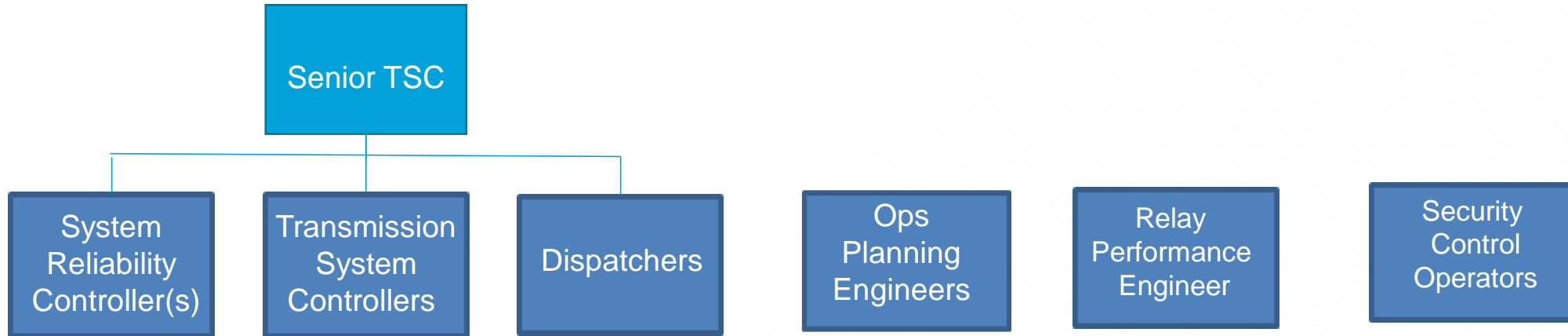
	<b>ITC Transmission</b>	<b>METC</b>	<b>ITC Midwest</b>	<b>ITC Great Plains</b>	<b>ITC Interconnection</b>
<b>SYSTEM PEAK LOAD</b>	12,745MW	9,469MW	3,724MW	—	—
<b>SERVICE AREA</b>	Southeast Michigan	Lower Peninsula of Michigan	Portions of Iowa, Minnesota, Illinois and Missouri	Serves SPP and South Central Region	—
<b>TOTAL TRANSMISSION MILES</b>	~ 3,100	~ 5,600	~ 6,700	~470	.4 miles in SW Michigan
<b>RTO MEMBERSHIP</b>	MISO	MISO	MISO	SPP	PJM
<b>ESTABLISHED</b>	Assets Acquired February 28, 2003	Assets Acquired October 10, 2006	Assets Acquired December 20, 2007	Formed August 18, 2006	Formed June 1, 2016

# FORTIS AT-A-GLANCE

- ITC has been part of the Fortis family of companies since 2016
  - Leader in the North American regulated electric and gas utility industry
  - Operations in 5 Canadian provinces, nine U.S. states and 3 Caribbean countries
  - Established in 1885 in St. John's Newfoundland and Labrador with formation of the St. John's Electric Company



# COVID-19 OPERATIONAL APPROACH – NORMAL STAFFING



- Normal Staffing - all from Primary Operations Control Room (OCR) & Primary Security Command Center (SCC); Backup OCR and SCC in warm standby, also used as training facility. Backup OCR/SCC located 35 miles from primary control center.
  - 1 Sr TSC, 4 to 6 TSCs, 1 to 2 SRCs, and 2 Dispatchers (currently augmenting staff resulting in varying staffing levels)
  - Engineering support for control room on a rotating assignment – 2 Ops Planning Engineers and 1 Relay Performance Engineer
  - 2 physical Security Command Operators and a supervisor (day shift only)
  - Contract kitchen services uses on-site facility to prepare breakfast and lunch selections for employees at reasonable cost



# COVID-19 OPERATIONAL APPROACH

## Initial COVID-19 Response

- Initiated Crisis Management Plan (ICS team) – targeted for pandemic response
- Reviewed/updated essential employee list – includes OCR, SCC, Outage Coordination, Facilities, IT Corporate, IT TMS, Engineering, Asset Management, Cook, Custodial support
- Reviewed and revised sequestration strategy from generic pandemic plan
- Removed Ops Planning Engineers and Relay Performance Engineer from control room
- Implemented corporatewide work from home policy on 3/16/2020
- Curtailed first of two planned OJT efforts in control room for trainees (1 week short of planned 6 week effort)
- Sanitized Backup OCR in preparation for potential use
- System operators and security command center staff sanitized their workstations at the end of each shift
- Where possible, system operators did not use the same console as the previous shift allowing the console to be dormant for at least 12 hours
- Solicited volunteers for sequestration

# COVID-19 OPERATIONAL APPROACH

## Sequestration Strategy

- **Staffing:**

- Reduced staffing levels to appropriate levels recognizing support from work at home/sequestered at-home employees. Objective was to keep as many scheduled switching jobs on track as possible, be able to respond to moderate storm activity and continue 100% physical security monitoring.
  - Went from 7-8 system operators and 2 dispatcher days/1 dispatcher nights to 6 system operators on days/5 system operators on nights and 1 dispatcher days/nights
  - Maintained 2 physical Security Command Operators
- All sequestered individuals are volunteers
- Created 3 groups of day/night coverage for OCR and 2 groups for physical Security Command Center (SCC), facility support and chef

# COVID-19 OPERATIONAL APPROACH

## Sequestration Strategy

- **Staffing (continued)**

- Groups were deployed in waves consisting of a combination of groups from OCR, SCC, facilities and chef. Each wave consisted of 14 consecutive day/night shifts. No rotating between days/nights within a wave.
- Wave 1 consisted of active group sequestered on-site and groups 2 and 3 sequestered at-home.
- After 14 consecutive shifts, transitioned from Wave 1 to Wave 2 where group 2 becomes the active group and sequestered on-site. Group 1 transitions to sequestered at-home.
- Sequestration effort began on March 22 at 0600.
- Each individual tested for anti-bodies prior to becoming sequestered on-site. Anyone testing positive required to work from home for at least 14 days prior to being allowed to sequester on-site.

# COVID-19 OPERATIONAL APPROACH

## Sequestration Strategy

- **Lodging for On-Site Sequestered Staff**
  - Blanket relationship with logistics vendor for disaster recovery support.
  - Lodging alternatives reviewed included setting up barracks in conference rooms, bringing trailers on site, and hotel located adjacent to HQ/primary OCR/SCC facility. Landed on using hotel – contracted for all 3 floors of hotel. Hotel sanitized by ITC environmental contractor.
  - Sequestered staff performed own room cleaning with supplies provided by ITC.
  - Sequestered staff did their own laundry using hotel facilities.
  - Sequestered chef used kitchen facilities at HQ to prepare meals. Snacks provided at hotel.
  - Hotel manager sequestered at hotel.

# COVID-19 OPERATIONAL APPROACH

## Sequestration Strategy

### • Training

- New hire and continuing system operator training considered non-essential -- does not mean training has stopped!
- First week of work at home implementation coincided with week 6 of cycle 1 training. Adjusted classes to deliver via remote Skype sessions for most classroom sessions. Training simulator exercise abandoned for this week. Simulator training normally performed from consoles in backup control room.
- Training staff efforts re-prioritized to focus on graduating trainees to provide defense in depth.
  - System operator trainees reassigned mentors from pool of system operators not sequestered.
  - Fast tracked effort to convert 2<sup>nd</sup> cycle of trainee OJT (On Job Training) effort to virtual implementation. Includes mentor verification of supporting task performance using remote simulator access. Currently fine tuning approach, addressing technology needs, etc.
  - Virtual verification of trainee Reliability Related Task implementation began.

# COVID-19 OPERATIONAL APPROACH

## Sequestration Strategy

### • Access Control

- VP level approval for all access of non-sequestered personnel to HQ (primary OCR/SCC location) and backup OCR/SCC facilities.
- VP and group leader approval needed for all non-sequestered personnel access into restricted areas – included both primary and backup control center locations.
- Facility badge readers turned off. All individuals must use intercom to request access from Security personnel.
- Access through the parking structure access point limited to sequestered personnel only.
- Non-sequestered personnel access the site through the main lobby only after satisfactory completion of self-administered temperature screening and health/travel questionnaire.
- Barriers and signage in place to prevent non-sequestered personnel from using same building locations as sequestered personnel.

# COVID-19 OPERATIONAL APPROACH

## Sequestration Strategy

### • **Access Control (continued)**

- On-site, sequestered personnel self administered temperature screening at the beginning (upon entering facility) and at the end of each daily shift. Health and travel questions are also answered daily. Results are recorded and any positive results are immediately reported to direct supervisor.
- At-home, sequestered personnel self administer and record temperature screenings twice per day and report any positive results immediately to direct supervisor to allow planning for an alternate individual to fill shift.
- Failed screening results in individual immediately changing status from sequestered to work from home until 14 days elapse with no symptoms before allowing to go back onto one of the waves.
- Areas where individual with failed screening was present are sanitized immediately.

# COVID-19 OPERATIONAL APPROACH

## Sequestration Strategy

- **Daily Life Assistance For On-Site and At-Home Sequestered Staff/Households**
  - All-employee volunteer group provided daily life assistance for employees/households to minimize potential exposure risk.
  - Engagement opportunity for non-essential employees in activities that directly support real time operations.
  - Services included grocery and medical supply delivery, pet care, etc.
- **Engagement Opportunities**
  - Fitness center at hotel (treadmills, stationary bicycles, limited weights, pool)
  - Entertainment options at hotel include cable tv and internet access, cards
  - Portable basketball hoop brought in OCR/SCC area
  - Walking trail at HQ complex



# COVID-19 OPERATIONAL APPROACH

## Sequestration - Conclusion

- **Sequestration ended June 8 (12 weeks)**
- **Observations:**
  - Used all volunteers for sequestration
  - Families used to rotating shift nature of work
  - Communication facilities available for frequent interaction
  - Most individuals taking advantage of fitness center/walking trails
  - Some night shift personnel experienced sleep difficulty due to room location and road noise during the day. Easily remedied by relocating rooms.
  - Increased comradery within the OCR and SCC teams as a result of this experience.

# COVID-19 OPERATIONAL APPROACH

- **Post-sequestration changes:**

- Allowed limited additional employees access to headquarters site as part of a phased return to work effort.
- Created new entrance to hardened area to ensure isolation of control room personnel from others at headquarters complex.
- Began active virus testing for all control room personnel on a once per rotation basis.





# Questions?



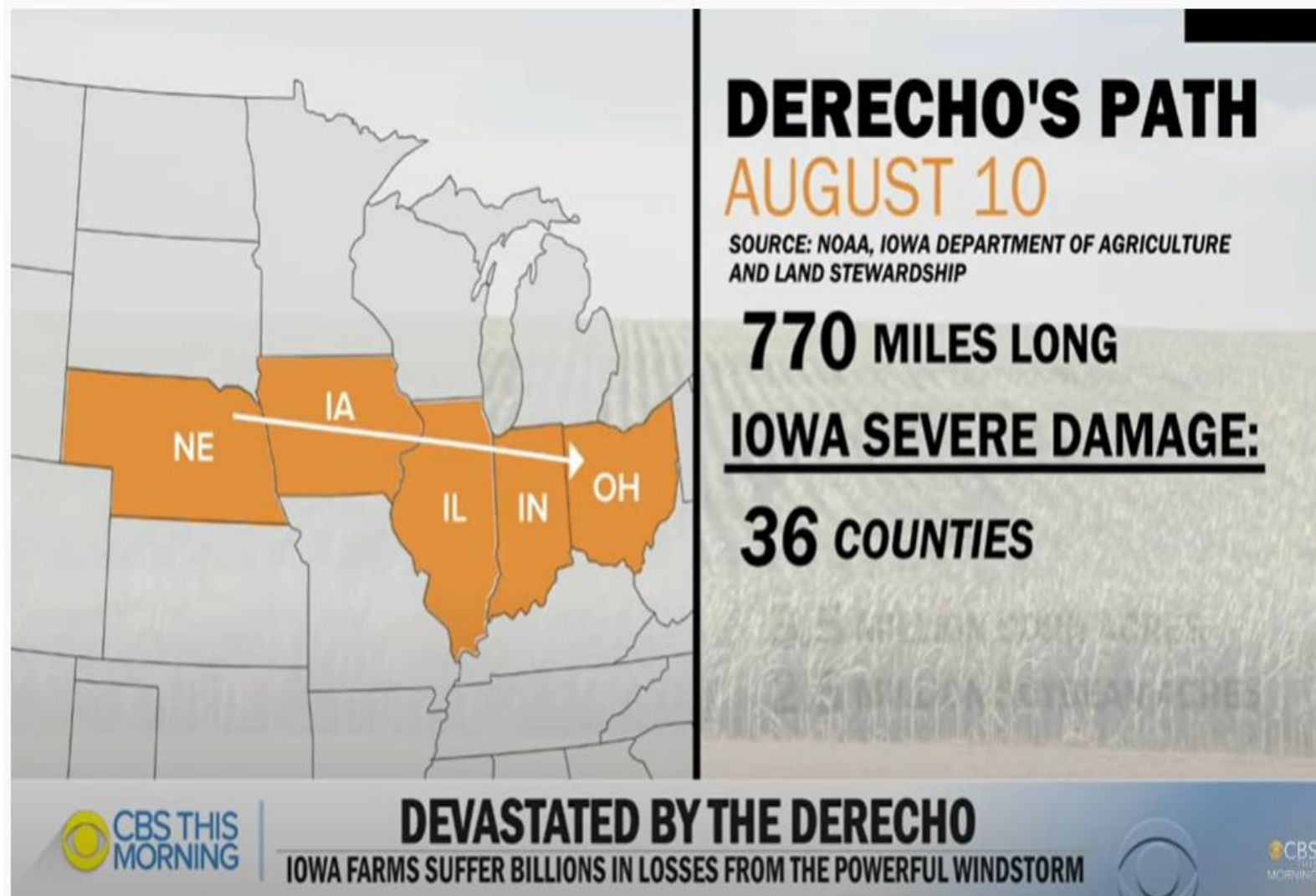
**AUGUST 10, 2020**  
**ITC MIDWEST DERECHO EVENT**

*Darrel J. Yohnk*  
*Director, Real Time Operations*  
*November 10, 2020*



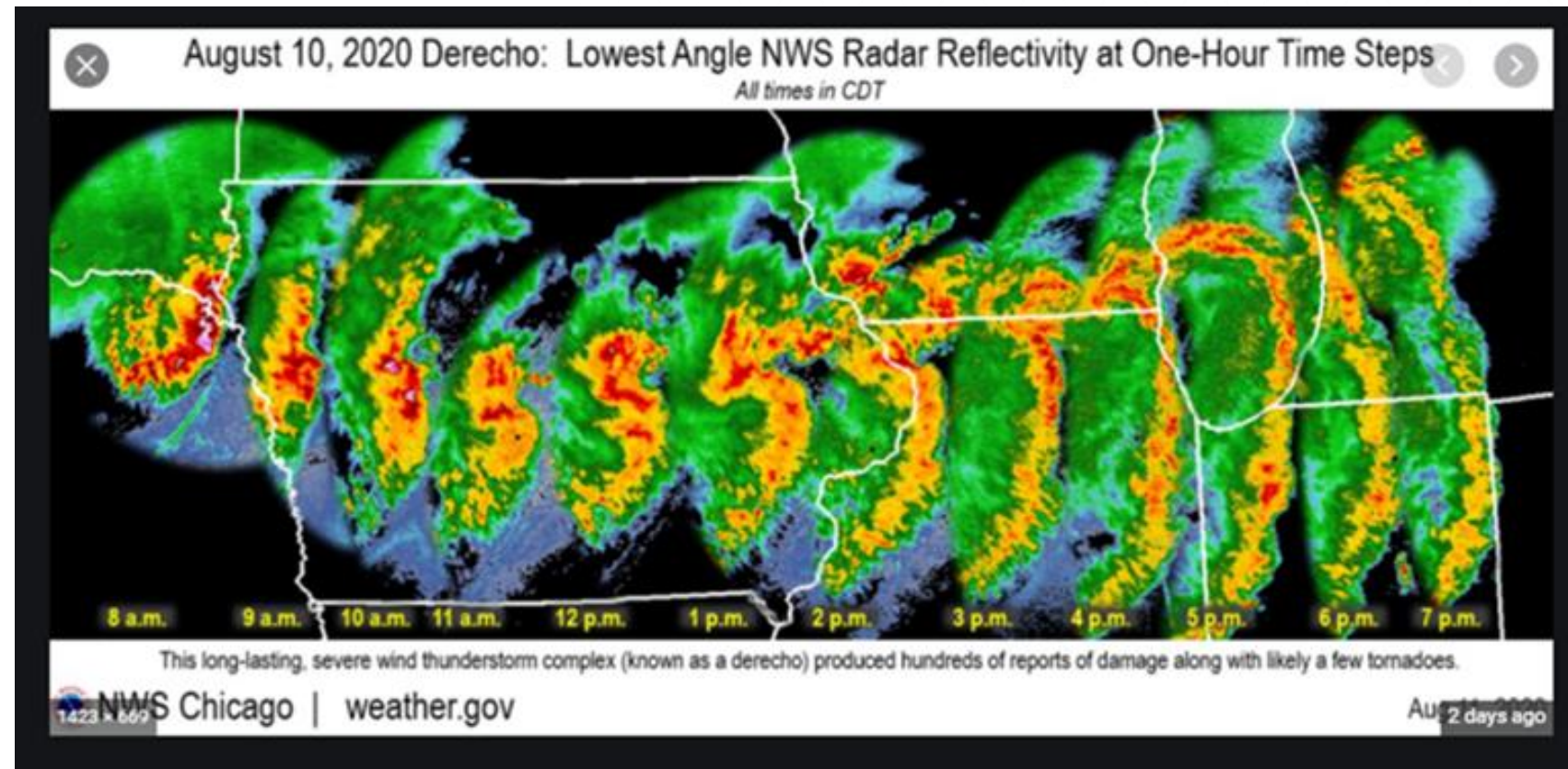
**FOR THE GREATER GRID**

# 08/10/2020 ITC MIDWEST DERECHO EVENT

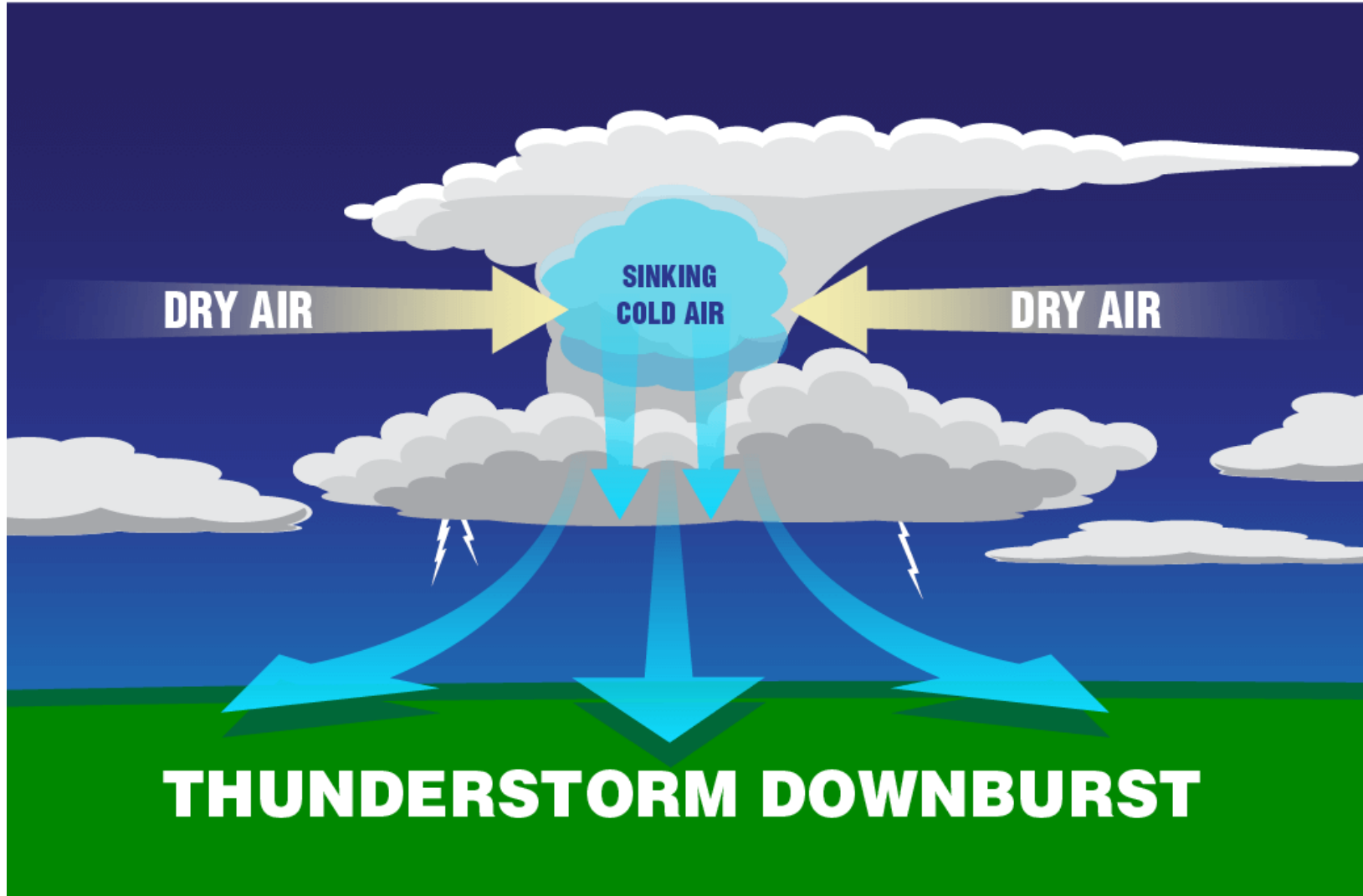


# 08/10/2020 ITC MIDWEST DERECHO EVENT

- NOAA defines a Derecho as fast-moving bands of thunderstorms with destructive winds. The winds can be as strong as those found in hurricanes or even tornadoes! Unlike hurricanes and tornadoes, these winds follow straight lines.



# 08/10/2020 ITC MIDWEST DERECHO EVENT



# 08/10/2020 ITC MIDWEST DERECHO EVENT





# 08/10/2020 ITC MIDWEST DERECHO EVENT

## Iowa Derecho Wind Gusts $\geq$ 80 mph

Location	Speed (est mph)
Le Grand	106
Marshalltown Airport	99
South Marshalltown	95
Marshalltown (US 30)	91
South Chelsea	90
West Elkhart	85
West Urbandale	85
East Jefferson	83
Des Moines Airport	80
Colfax	80
Many locations	$> 70$

# 08/10/2020 ITC MIDWEST DERECHO EVENT

**ITC experienced sustained outages on 144 lines**

Voltage	Number of Lines
34.5kv	49
69kv	55
115kv	9
161kv	29
345kv	2

# 08/10/2020 ITC MIDWEST DERECHO EVENT

- ITC lost in excess of 900MW of Load
- 500,000 customers impacted
- 30% of the Iowa customer base
- ITC restored load to customers in record time
  - More than 780 utility workers from across the country were on the ground to rebuild the transmission lines.
  - More than 1,000 wooden and steel poles were used in the rebuild.
  - At 1230 EST on 8/18, the last customers were energized, just 8 days following this massive storm.

# 08/10/2020 ITC MIDWEST DERECHO EVENT

## Duane Arnold Energy Center Nuclear Facility (DAEC Loop)

- Total loss of off-site power 8/10 @ 1246 EST
- On-site power (DAEC/EDGs) established @ 1235 EST
- EDGs were on-line 11 minutes prior to loss of off-site power
- Re-established off-site power 8/11 @ 1126 EST

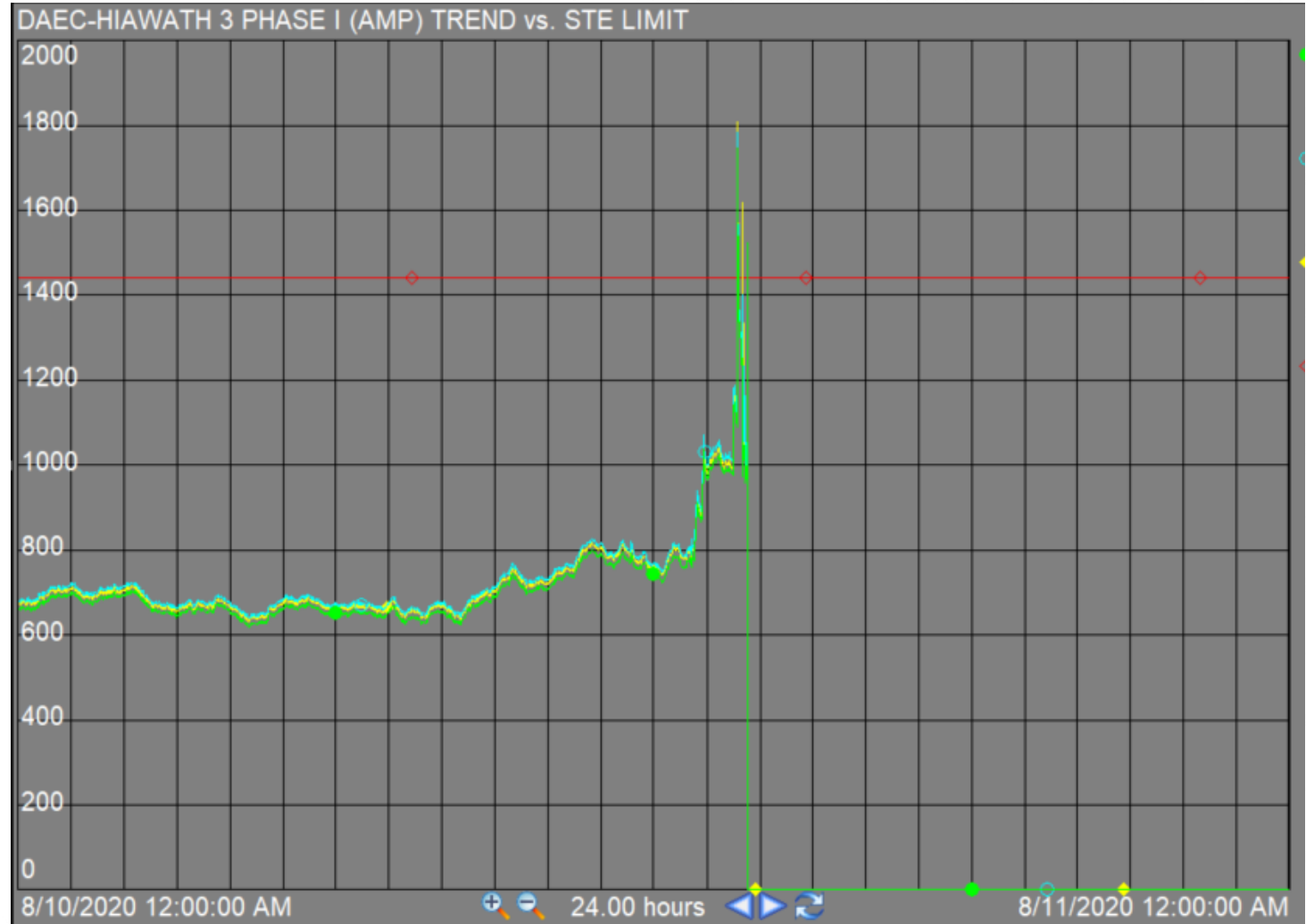
## Duane Arnold Energy Center Nuclear Facility (DAEC Loop)

- Total loss of off-site power condition preceded by loss of four 161 kV, one 115 kV line, and two 69 kV lines
- Subsequent trip of Duane Arnold-Hazleton 345 kV line resulted in a power swing event of the DAEC area against the Interconnection
- Power swing event led to zone 1 tripping of one 161 kV and two 69 kV lines creating an electrical island/total LOOP event
- Islanded area further breaks up with loss of the remaining DAEC 161 kV line

# 08/10/2020 ITC MIDWEST DERECHO EVENT

## DAEC – HIAWATHA 161 kV

9.5% above Short-Term  
Emergency rating for 1.4  
minutes



# 08/10/2020 ITC MIDWEST DERECHO EVENT



# 08/10/2020 ITC MIDWEST DERECHO EVENT





# 08/10/2020 ITC MIDWEST DERECHO EVENT





# Questions?

# AEP Transmission Operations

## Response to COVID-19

Initial Response

# AEP LEADERSHIP

# AEP Initial Response

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- AEP sent office staff with laptops home Friday 3/13/2020 to test working at home on Monday 3/16/2020.
- Verified the infrastructure worked well with minor changes.
- Eventually about 13,000 / 17,000 employees working at home with laptops and pcs

Initial Response

# **TOPS MANAGEMENT**

# TOps Initial Response

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- **Communication**
  - 1 ½ hour calls M, W, F with supervisory staff
  - 50 folks on call
  - Open discussion of all ideas and questions.
- **Documentation**
  - Updated previous pandemic document
    - 38 pages to 58 pages
  - Created ShareNow site for documentation

# TOps Initial Response

The screenshot shows a web page titled "TOps Pandemic/Epidemic Response Plan". The page header includes "ShareNow", "BROWSE PAGE", "AEP Internal v2", and "SHARE". The main navigation bar contains "Transmission Operations (TOP5)", "TOps Related Sites", "Focus Groups", "TOps Survey Results", and "EDIT LINKS". The page content includes a "Home" link, a title "TOps Pandemic/Epidemic Response Plan:", a description of the plan's purpose, a red "Attention:" warning, and a link to "Submit an access request to a facility containing a TOps TOC". On the right side, there is an illustration of a person wearing a red shirt and a blue face mask. To the right of the illustration, the text reads: "Current Level: Pandemic Condition 3 - 03/23/2020" and "Historical Log: Pandemic Condition 1 - 03/02/2020, Pandemic condition 2 - 03/08/2020".

— PANDEMIC SONG, COWORKER, HIGH SCHOOL PICTURE, ETC.



Adjustments

**TOPS**

# TOps Adjustments

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- **On Site Staff**

- Reduced further as possible.
- Some shift workers relocated to home with pcs borrowed from other office staff, training areas.
- On-site nurse around shift changes for COVID questionnaire and temperature checks.

# TOps Adjustments

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- **Sequestering Discussions**
  - NERC, RTO, NATF, EPRI call participation to share and hear about sequestering options
  - What ifs and when ifs
- **Schedule Allowances**
  - Changes to traditional schedules
    - 4x10, 5x8, ad hoc start times

Steady State

# TOPS

# TOps Steady State

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- **Continue the adjustments**
- **Protection / Prevention**
  - Operators on desk are in the office.
    - Relief, training, scheduling are from home.
    - Rearranged desks, installed plexiglass
  - Building manager has to approve *any* access submitted via online form.
    - Tyvek suits for visitors

# TOPs Steady State

- **Protection / Prevention (con't)**
  - Wello machines purchased



# TOps Steady State

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- **Collaboration & Communication**
  - Webex teams, etc. to emulate “stopping by” desks, ongoing conversations
  - Video cameras
  - Softphones to keep phone numbers the same
  - Podcasts for all staff – COVID → General
    - Executive interviews, cultural stories
    - Personal Development Plans / Performance Reviews

# TOps Steady State

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- **Games**
  - from personal pcs
  - Pictionary
  - Minesweep



Future

**TOPS**

- **Location**
  - On-Site, Remote, Hybrid
  - Geographical location –Hiring, Living, Relocating
- **Career Changes**
  - Switching is easier now
- **Long term employee relationships**
  - What does Zero Harm look like?
  - Vigilant listening
  - Outdoor outings, Netflix family, VHH

# QUESTIONS?



# **Collaboration tools during Covid**

**FPL Grid Control Systems**

**Rob Adams  
Sr. Director GCS  
11/10/2020**

# Our Grid Control Systems team adopted a hybrid approach to ensure connectivity and resource availability

## Grid Operations During a Pandemic

- **Support teams**

- Support personnel aligned to be responsible for single site
- Small teams at each geographic site in case of communication issues
- Designated by skill, e.g., DMS, SE/CA, etc.
- Remaining team (75%) remote – ~10k remote connections at NEE daily

- **Change Freeze**

- Initially froze everything, realized quickly that this was a long haul
- Allowed for patching activities to occur, first in server rooms and then later on Control Center workstations

- **Collaboration Tools**

- Used WebEx to start
- Klaxoon proved to be an innovative way to share content and keep users engaged
- MS-Teams was a game changer



# MS-Teams was the Collaboration app that helped day to day operations the most

## Microsoft Teams

- **Microsoft Teams is a collaboration app that helps your team stay organized and have conversations—all in one place**
  - Teams - Find channels to belong to or create your own; inside channels you can hold on-the-spot meetings, have conversations, and share files
  - Activity - Catch up on all your unread messages, @mentions, replies, and more
  - Chat – Communicate through threaded and persistent chat
  - Calls - You can call anyone from Teams, even if they're not using Teams
  - Instantly transition chat to a call
  - Meetings - Schedule a Teams meeting from Outlook; share your desktop within the meeting



**Teams collaboration centralizes activities in a single app and will replace Skype**

# Teams Channels are used to give smaller groups a place to meet and collaborate

## Microsoft Teams

- Channels by group/area of responsibility
  - Easy communication and organization within working groups

The screenshot displays the Microsoft Teams interface. On the left, a sidebar lists various channels under the 'Systems' group, including 'General', 'Support', 'Stakeholder Engagement', 'AFS and FCI Modeling Group', 'DB Modeling Group', 'Safety', 'Applications and Administrations Group', 'Direct Reports', 'MS-DMS Upgrade', 'Situation Room', 'Distribution Transition', 'Control Systems', 'Support', 'Asset Management Project (OMS-ADMS)', 'Project Management', 'Special Projects', 'Storm Preparation', and 'Water cooler talk'. The 'General' channel is selected. The main view shows the 'General' channel chat history. Recent messages include: 'EDNA issues ended: 9m 30s' (October 9, 2020), 'he meeting on the general session to see the GE opening session' (October 13, 2020), 'Optional invite, just sharing the online realtime content out there' (October 13, 2020), 'Sharing GE General Session (test) started' (42 replies, Meeting ended: 4h 51m), and 'GE Virtual Users Conference started' (14 replies, Meeting ended: 4h 57m).

# The larger “team” covers both Software and infrastructure support members

## System Activities

- Used to coordinate EMS activities
  - Switchovers
  - Patches/Restart of systems
  - Database/Software loads
  - Enables rapid, cross team communications and feedback

The screenshot shows a Microsoft Teams chat window titled "Situation Room". The chat history includes the following messages:

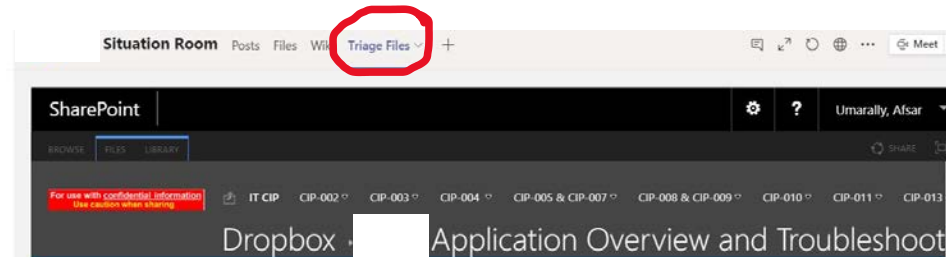
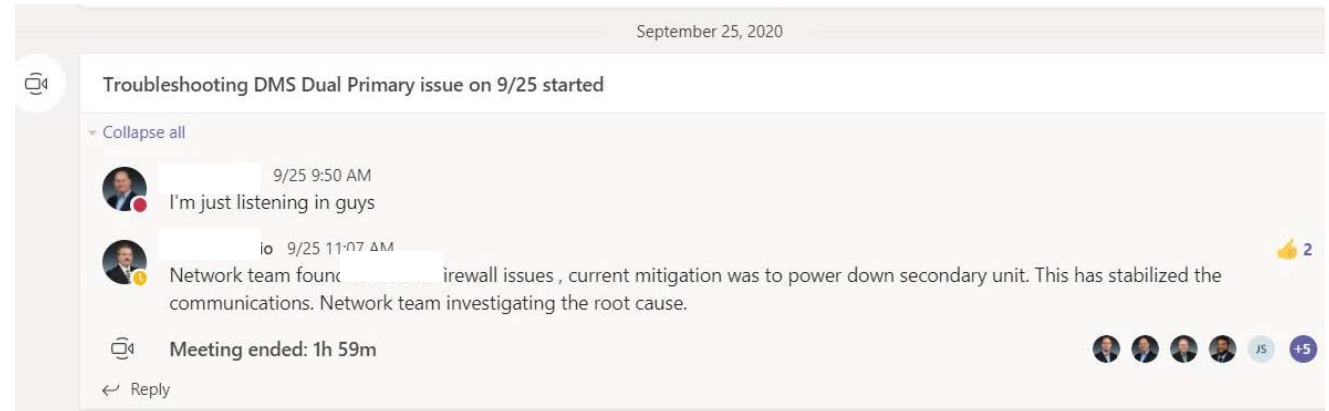
- A message from a user with a green status icon: "Replication is complete and FCS has been un-NIS'd. This thread can be considered closed." (4 thumbs up)
- A "DB LOAD" message from a user with a yellow status icon: "Team I will preparing our FCSs for our DB load." with a sub-bullet: "Building shared memory on STANDBYs please disregard alarms generated" (4 thumbs up)
- A "Collapse all" button.
- A message from a user with a yellow status icon: "Shared memory has been re-defined in our STANDBY FCSs" (2 thumbs up)
- A message from a user with a purple status icon: "All System Control Centers are good to go at this time for 5:32AM Switchover." (1 thumbs up)
- A message from a user with a purple status icon: "Attestation has been signed by the RC." (1 thumbs up)
- A message from a user with a purple status icon: "DBSeq is complete." (1 thumbs up)
- A message from a user with a purple status icon: "Currently holding. Having issues with WebFG services." (1 thumbs up)
- A message from a user with a purple status icon: "Issue with WebFG resolved. Continuing with switchover to Alpha." (1 thumbs up)
- A message from a user with a purple status icon: "Switchover in progress." (1 thumbs up)
- A message from a user with a purple status icon: "Alpha is enable." (1 thumbs up)
- A message from a user with a purple status icon: "OAG Data is aood." (1 thumbs up)



# Quickly Connect Team Members

## Troubleshooting

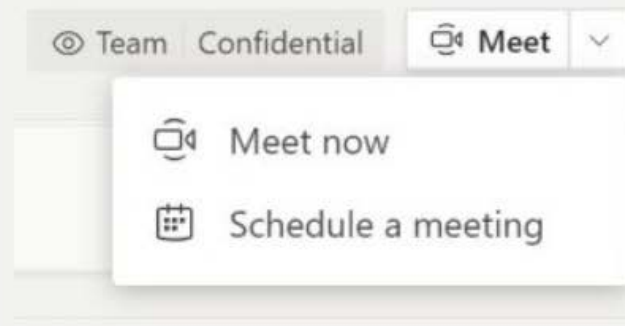
- **Ad hoc call on a channel**
  - Ability to pull in specific SME
  - Unlike WebEx, Teams can directly call a team member
    - Can contact when away from their desk using mobile app
  - Common place to share troubleshooting steps
  - Link to BCSI dropbox to exchange CIP data



## Meetings

### Channel meetings in an instant


It's easier to start a meeting in a channel. Select the **Meet** button at the top of a channel and choose to meet right away or to schedule a meeting. When you choose **Meet now**, you'll get the same options for setting your audio and video up before you join as you do for other meetings.

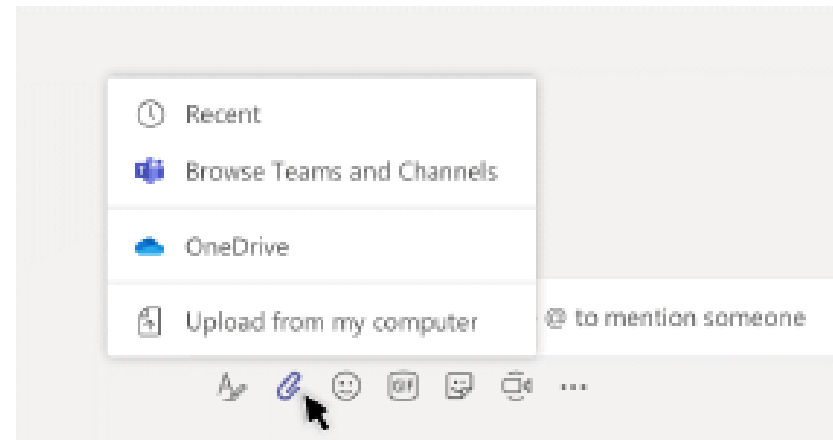


**Start meetings within a channel to base it on that conversation**

## Share Files

### Share a file

Click **Attach**  under the box where you type messages, select the file location and then the file you want. Depending on the location of the file, you'll get options for uploading a copy, sharing a link, or other ways to share.

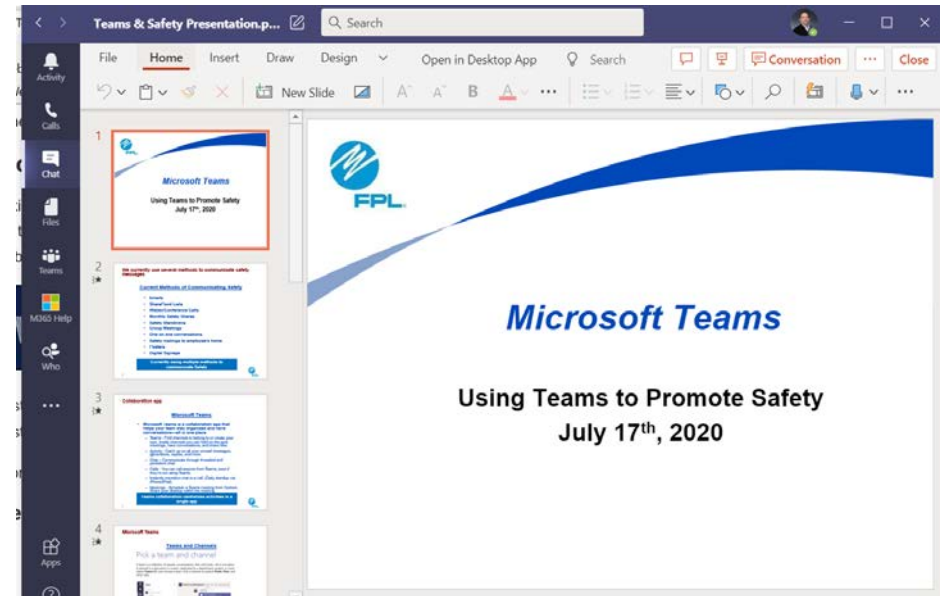


Share files by uploading a copy, sharing a link, SharePoint and others

# Microsoft Teams

## Collaboration

- Working in Microsoft Teams lets you work on files together at the same time
- Messages about the document stay with it and will show up in your team
  - In a team conversation or in the "files" tab, select "more options" button next to the file
  - Choose if you want to edit the file in Teams, on your desktop, or online
  - Edit the file; colored flags show who else is working on it with you
  - Select "start conversation" to add a message about the file
  - Type your message or @mention someone and select "send"



**Collaborate with others - edit files together, have meetings, video calls, all in Teams**

# We're continually applying the lessons we have learned over the past 7 months

## Lessons Learned

- **Communication – over communicate, then communicate some more**
  - A lot is lost, even when having a video conversation
  - Keep a constant ping going with your collaboration tools
    - We're using an engagement channel where I post a message at least weekly
- **Planning – expect a marathon and plan for a sprint to start**
  - We initially thought this would be over quickly and then realized it was a marathon and adapted – especially important with patching
- **Use the tools available to you**
  - Face-to-face interaction via video with all levels of the organization helps
  - Use the skip level concept and arrange a 5 minute video conversation
  - Interactive meeting & survey tools such as Klaxoon and MS-Forms help
- **Stay Positive and supportive**
  - Everyone is anxious about so many items, i.e., health, family, job, productivity, etc.
  - Upbeat, positive messages help with anxiety and encourage open communications