

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Top Priorities for NERC Over the Next Three Years

Mark G. Lauby, Senior Vice President and Chief Engineer
Member Representatives Committee Meeting
November 5, 2020

RELIABILITY | RESILIENCE | SECURITY



- Stakeholders are generally supportive of work plan activities
- Top three common themes
 - Information Sharing, Cyber and Physical Security
 - Grid Transformation and Interdependency
 - Standards, Compliance, and Enforcement
- Three others areas identified
 - Pandemic Response
 - Committees' Effectiveness
 - Budget & Effective and Efficient Operations

- Enhanced E-ISAC Strategic Plan
- Expanded information sharing with Canada
- Establish ESCC Member Executive Committee (MEC) working group to identify ways to increase information sharing with the E-ISAC
- Continued evolution of cyber security standards
- Stood-up BPS Security and Grid Transformation group
- Planning/Operating/Critical Infrastructure Protection Committees' purview into one Reliability and Security Technical Committee (RSTC)

- Stood-up BPS Security and Grid Transformation group
- Standard Authorization Requests to enhance Reliability Standards
- Guidelines on interconnection of inverter-based resources
- RSTC Subcommittee being chartered to assess new technology integration
- Improvements being made to reliability assessments, modeling, and performance analysis

- Align and Secure Evidence Locker
- Continued modernization of processes and Rules of Procedure
- Standards Efficiency Review – Phase I & II
- Enhanced standards to address grid transformation
- Continued evolution of cyber security standards

- Evaluate feedback, reach out to stakeholders and trade associations
- Update work plans as required



Questions and Answers



Recent FERC Activities

Andy Dodge

Director, Office of Electric Reliability

Federal Energy Regulatory Commission

November 5, 2020

The views expressed in this presentation are my own and do not represent those of the Commission or any individual Commissioner

Agenda

- **Cyber Security**

- Virtualization, Cloud Services for Power Grid Operations
- CIP Enhancements Project
- Cybersecurity Incentives Policy White Paper
- Potential Risks to the BES
- Joint Cyber Planning for Response and Recovery Study (CYPRES)
- Lessons Learned from Commission-Led CIP Reliability Audits

- **Operations and Planning**

- Transmission Incentives NOPR
- Court upholds FERC Order 841 Boosting Electric Grid Storage
- Participation in DER Aggregations in Markets Operated by RTO/ISO
- Retirement of 18 Reliability Standard Requirements

- **Technical Conferences**

- Offshore Wind Integration in RTOs/ISOs

Virtualization, Cloud Services for Power Grid Operations

- NOI in RM20-8, RD20-2 - issued 2/20/20.
- Seeks comments on potential benefits and risks of virtualization and cloud computing services in the bulk electric system operations and barriers to FERC-approved Critical Infrastructure Protection (CIP) Reliability Standards.
- Poses questions on four general topics:
 - Scope of potential use of virtualization or cloud computing
 - Associated benefits and risks
 - Possible impediments to their implementation
 - Potential new and emerging technologies beyond virtualization
 - Cloud computing that responsible entities may be interested in adopting
- The Commission will use the NOI to decide whether it would be appropriate to direct NERC to develop modifications to the CIP reliability standards to facilitate the use of virtualization and cloud computing by grid users and operators.
- **Initial and reply comments in the Virtualization and Cloud were due 7/1/20 and reply comments 7/31/20. Staff is reviewing comments.**

Potential Enhancements to the CIP Reliability Standards

- NOI in RM20-12, RD20-2 issued 6/18/20.
- The NOI seeks comment on whether the CIP Reliability Standards adequately address cybersecurity risks pertaining to (i) data security, (ii) detection of anomalies and (iii) events and mitigation of cybersecurity events.
- In addition, the NOI seeks comment on the potential risk of a coordinated cyberattack on geographically distributed targets and whether Commission action, including potential modifications to the CIP Reliability Standards, would be appropriate to address such risk.
- **Initial and reply comments in the NOI were due 8/24/20 and 9/22/20, respectively. Staff are reviewing comments.**

Cybersecurity Incentives Policy White Paper

- Issued 6/18/2020 in Docket AD20-19-000
- Explores a potential new framework for providing transmission incentives to utilities for cybersecurity investments that produce significant cybersecurity benefits for actions taken that exceed the requirements of the CIP Reliability Standards. States that transmission incentives to counter the evolving and increasing threats to the cybersecurity of the electric grid may be warranted.
- Seeks comments on 11 questions. Some topics include:
 - Adoption of one or both of the CIP Reliability Standards and NIST Framework approaches;
 - Identify type of incentive that would encourage cybersecurity improvement based on the approaches;
 - Incentives based on medium/high and Hub-Spoke methodology, and /or on NIST Framework;
 - Sufficiency of 200-basis point project-specific ROE adder;
 - Should there be a rebuttable presumption of reasonableness; and
 - Appropriateness of adopting a sunset date for certain incentives.
- **Comments were due 8/17/20 and reply comments 9/1/20. Staff is reviewing comments.**

Potential Risks to the BES

- NOI in RM20-19 issued 9/17/20 seeks comment on the potential risks to the BES posed by the use of equipment and services produced or provided by entities identified as risks to national security.
 - Extent to which equipment and services provided by such entities are used in the operation of the BES;
 - Risks to BES reliability and security posed by the use of equipment and services;
 - Whether the current CIP Reliability Standards adequately mitigate the identified risks;
 - Possible actions the Commission could consider to further address the identified risks; and
 - Strategies to mitigate any potential risks posed by such telecommunications equipment and services, including but not limited to potential modifications to the CIP Reliability Standards.
- **Initial and reply comments in the NOI are due 11/23/20 and 12/22/20, respectively.**

Cyber Security

Joint FERC, NERC Cyber Planning for Response and Recovery Study (CYPRES):

- Published on 9/14/20. Joint FERC/NERC Report on cyber planning for response and recovery that:
 - Identifies common elements among Incident Response and Recovery (IRR) Plans,
 - Outlines common practices for the electric utility industry, and
 - Includes observations on cyber security capabilities and effectiveness of IRR plans.
- Link: <https://www.ferc.gov/news-events/news/ferc-nerc-staff-outline-cyber-incident-response-recovery-best-practices>

Lessons Learned from Commission-Led CIP Reliability Audits:

- Published on 10/2/20. FERC Staff Report offers recommendations to help users, owners and operators of the bulk-power system improve their compliance with the mandatory CIP Reliability Standards as well as their overall cybersecurity posture based on lessons learned.
- Link: <https://www.ferc.gov/media/2020-staff-report-lessons-learned-commission-led-cip-reliability-audits>

Transmission Incentives NOPR

- NOPR in RM20-10 issued 3/20/20.
- Proposes to revise existing regulations implementing section 219 of the FPA to align Commission policy with statutory mandate of ensuring reliability and reducing transmission congestion.
- Proposes to depart from the risks and challenges approach and instead focus on granting incentives based on economic and reliability benefits.

NOPR proposes to provide incentives for:

- Joining/remaining in an RTO/ISO (increased from 50 to 100 basis pts)
- Projects that meet a pre-construction benefit-to-cost ratio (50 pts) and projects that meet a post-construction benefit-to-cost ratio (50 pts)
- Projects that demonstrate reliability benefits (up to 50 pts)
- Technologies that enhance existing transmission facilities (100 pts)
- **Comments were due 7/1/20; Commission received over 80 comments. Staff is reviewing the comments.**

Order No. 2222: Participation of DER Aggregations in ISO/RTOs Markets

- Final Rule in RM18-9, Order No. 2222, was issued 9/17/20.
- The Final Rule enables DERs to participate in all regional organized wholesale capacity, energy and ancillary services markets alongside traditional resources. Multiple DERs can aggregate to satisfy minimum size and performance requirements that they might not meet individually.
- The new rule builds off the DC Circuit Court's recent ruling on Order 841, in which the court affirmed FERC's exclusive jurisdiction over wholesale markets and the criteria for participation in them.

Retirement of Reliability Standards Requirements

- Final Rule in RM19-16 and RM19-17 was issued 9/17/20.
- The Final Rule approved the retirement of 18 Reliability Standard requirements NERC identified through its Standards Efficiency Review.
- The Final Rule remanded proposed Reliability Standard FAC-008-4 for further consideration by NERC and took no action on the proposed retirement of 56 Modeling, Data and Analysis (MOD) Reliability Standard requirements.

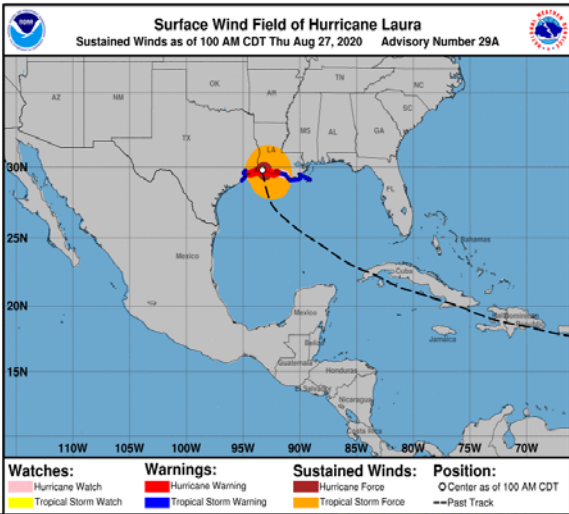
Offshore Wind Integration in RTOs/ISOs Technical Conference

- To be held 10/27/20 in AD20-18-000 (WebEx)
- Expected to discuss whether existing Commission transmission, interconnection, and merchant transmission frameworks in RTOs/ISOs can accommodate anticipated growth in offshore wind generation in a way that safeguards open access transmission principles.
- **Expected to accept public comments – TBD.**

Stay Home, Stay Safe!

When Out, Please Wear a Mask.

- Thank you!
- Questions?



Hurricane Laura

Todd Hillman
MISO
Senior Vice President,
Chief Customer Officer

Hurricane Laura

- Strongest storm to hit Louisiana in over 150 years
- Devastating impact to wholesale transmission system
- Used range of reliability and market tools to facilitate restoration and protect wider system
- Excellent coordination, collaboration and communication with SERC, Entergy, CLECO, ETEC and state regulatory authorities (LA & TX)
- Notable restoration challenge in Lake Charles area with all 9 transmission lines (100 kV to 500 kV) into Lake Charles area heavily damaged
- Outreach began before the storm hit

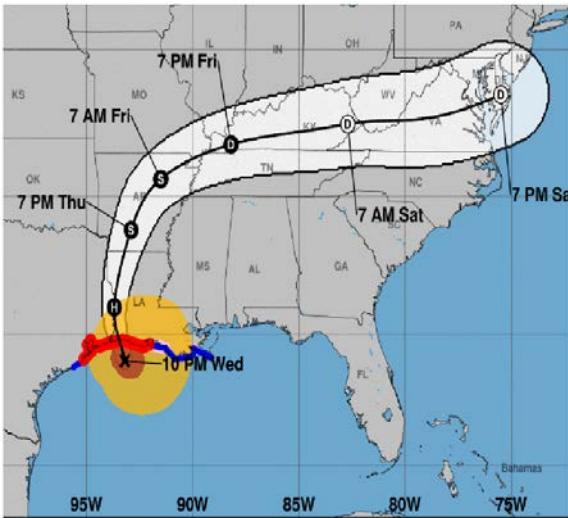


Hurricane Laura

Lessons Learned

- Preparation and drills matter
- Better understanding about support requirements during extreme weather response and restoration
- Reviewing communications and coordination for improvements (“the story matters”)
- Incorporating learnings into processes and future drills
- Enhance market pricing in sub areas/load pockets to better reflect local system conditions



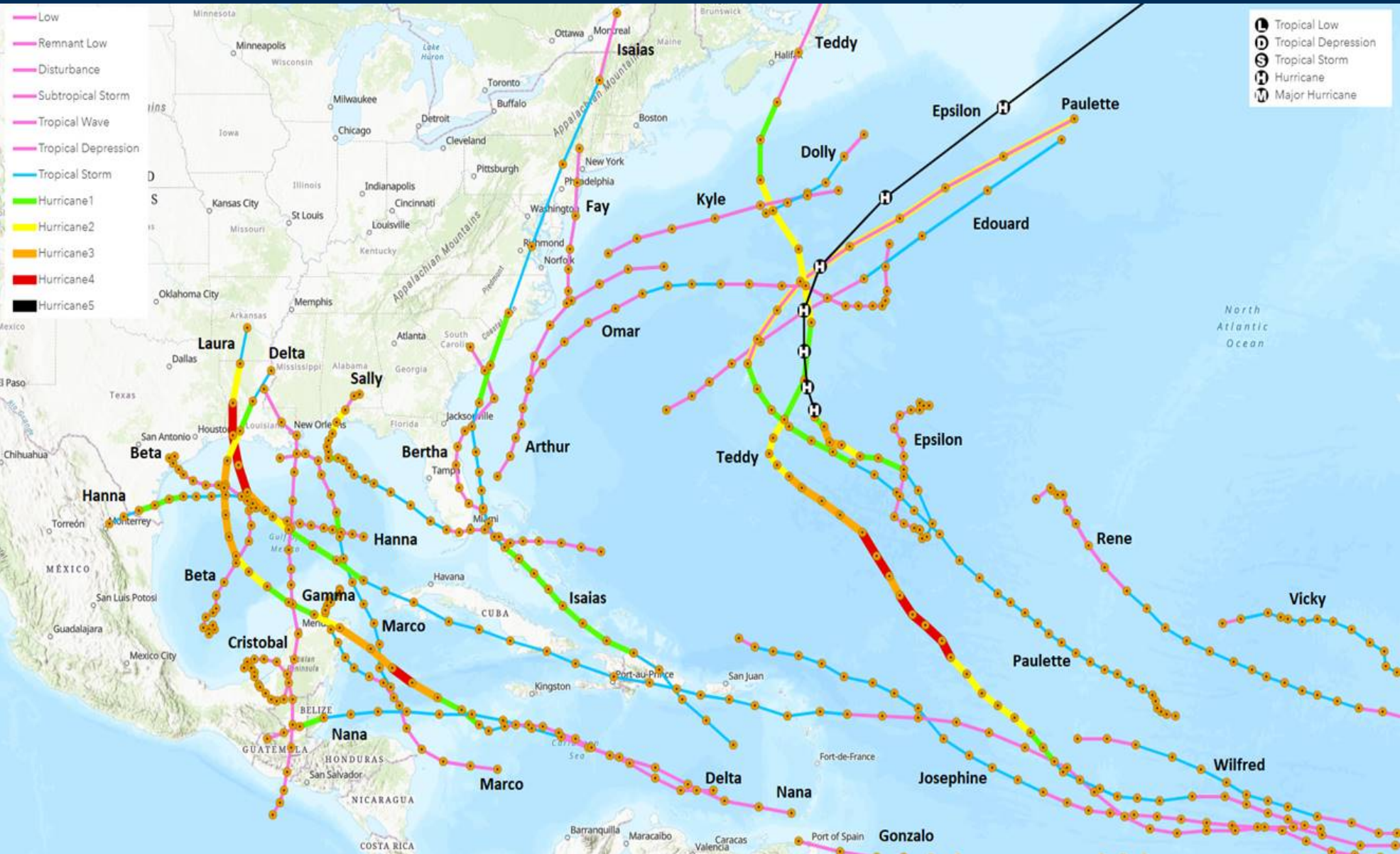


Hurricane Laura

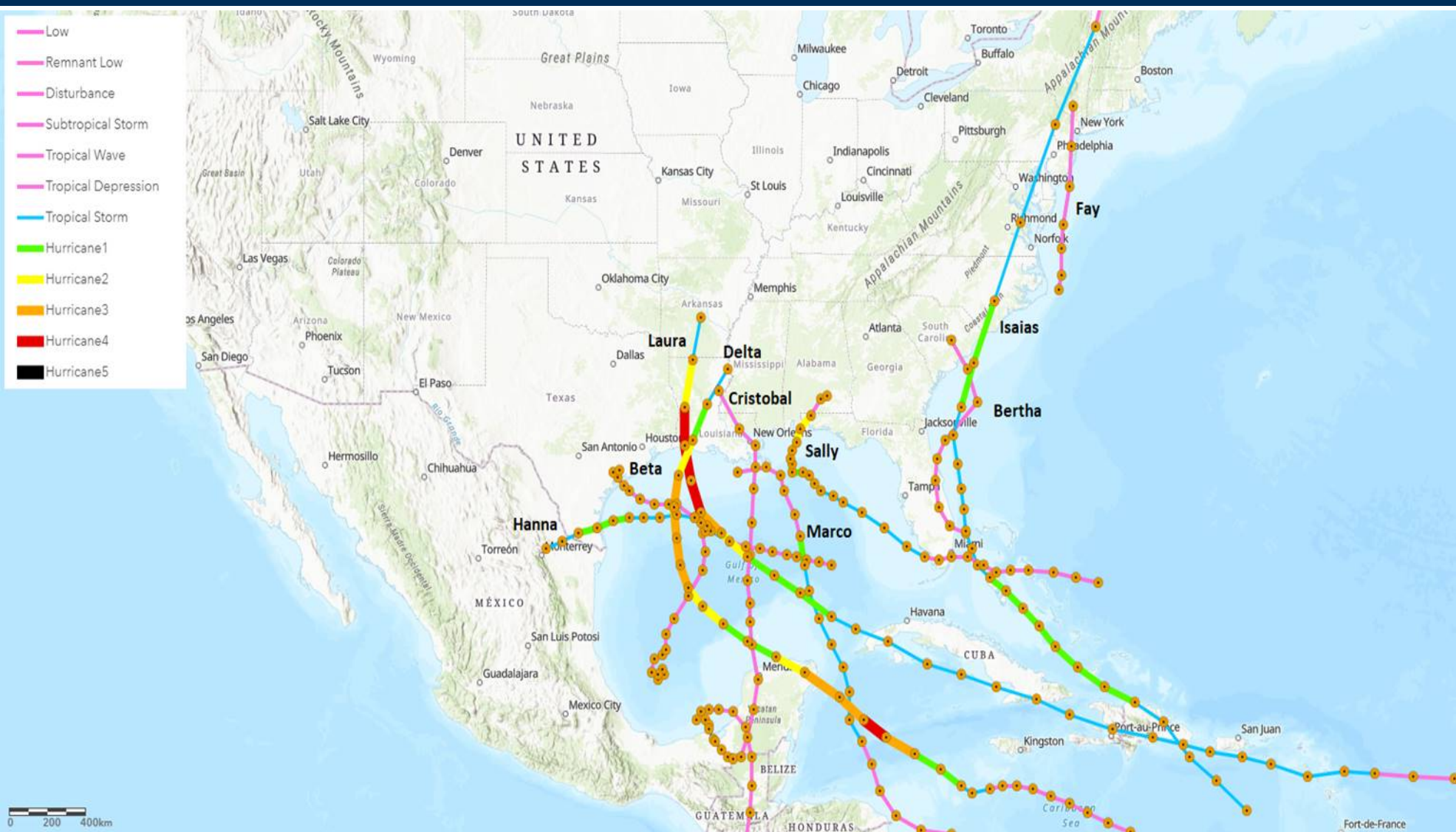
Tim Ponseti
SERC

Vice President, Operations

2020 Hurricane Season - Record Year



10 landfalls in U.S. – breaks 1916 record



5 Hurricanes – U.S. landfall



Hurricanes Laura and Delta



Laura and Delta – landfall 12 miles apart



Hurricane Delta – October 9, 2020

Hurricane Delta

Category 4 major hurricane (SSHWS/NWS)



Hurricane Delta intensifying east of Texas on October 8

Formed	October 5, 2020
Dissipated	October 12, 2020 (Remnant low after October 10)
Highest winds	1-minute sustained: 145 mph (230 km/h)
Lowest pressure	953 mbar (hPa); 28.14 inHg
Fatalities	6 total
Damage	\$2 billion (2020 USD)
Areas affected	Jamaica, Nicaragua, Cayman Islands, Yucatán Peninsula, Gulf Coast of the United States, Southeastern United States, Northeastern United States
Part of the 2020 Atlantic hurricane season	

Initial Sustained Transmission Line Outages

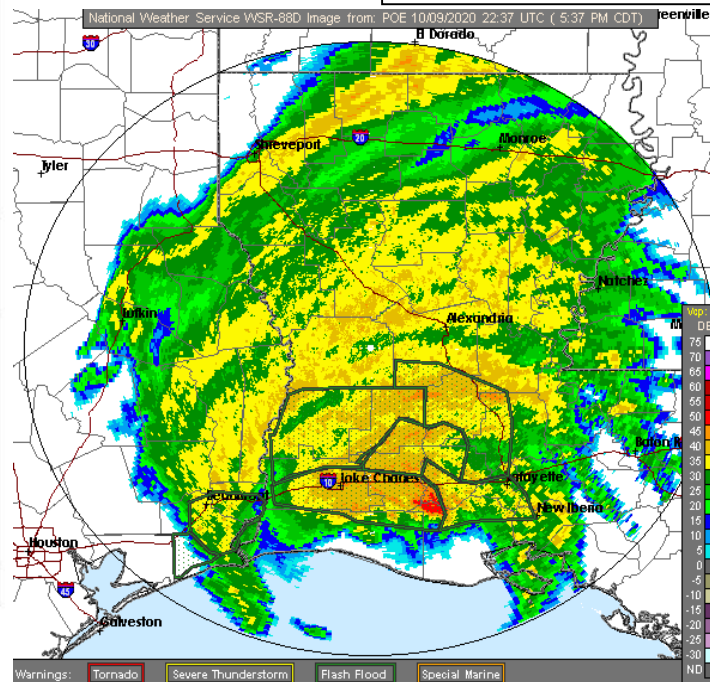
500 kV:	2
230 kV:	22
138 kV:	48
115 kV:	40
69 kV:	71

Total: 183

Initial Customers without power

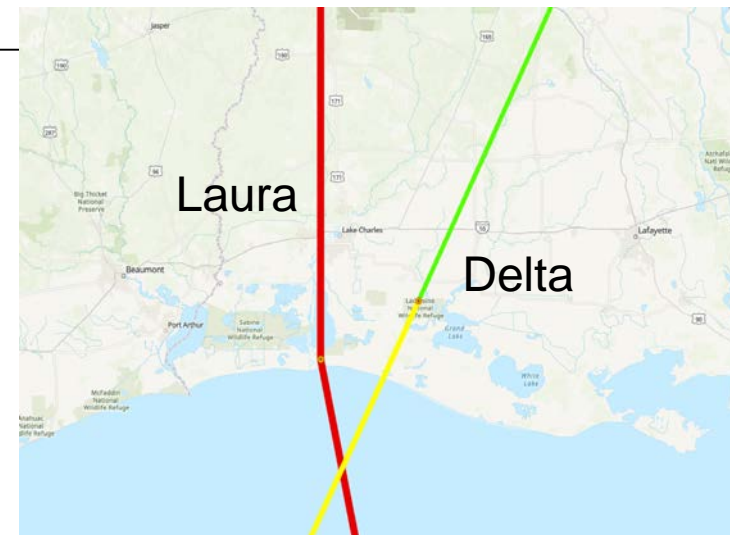
LA: 600k
TX: 115k
MS: 95k
AR: 10k

Total: 820k



Highlights

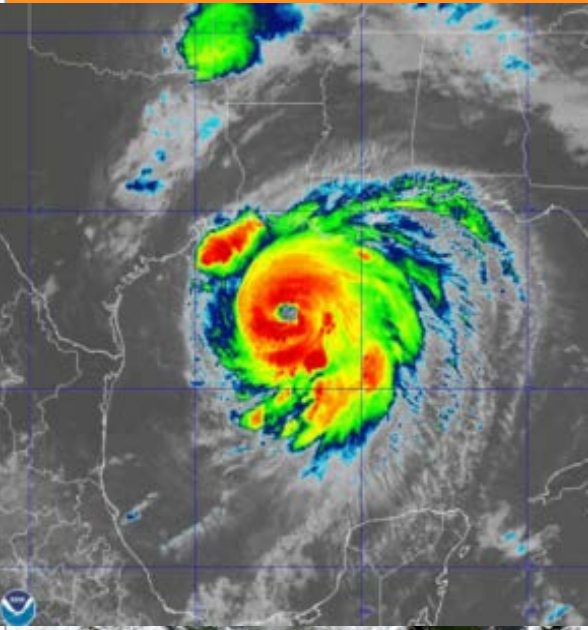
- Hurricane Delta made landfall on October 9th at 6:00 pm CDT near **Creole, Louisiana** as a **Category 2** hurricane with maximum sustained winds of 100mph.
- 12 miles east** of where Hurricane Laura made landfall 6 weeks earlier, with Hurricane Laura restoration efforts were still ongoing.
- SERC communicated and collaborated closely with RC's, TOPS, BA's and the NERC Situational Awareness Team throughout this event.
- Critical 500kV lines returned to service prior to Hurricane Delta making landfall
- Those same transmission lines were forced out of service again.
- After landfall, Hurricane Delta weakened rapidly.
- All customers were **restored by October 15th**.



Hurricane Laura - August 27, 2020

Hurricane Laura

Category 4 major hurricane (SSHWS/NWS)



Initial Sustained Transmission Line Outages

500 kv: 6

230 kv: 51

161 kv: 4

138 kv: 108

115 kv: 56

69 kv: 117

Total: 342

Initial Customers without power

LA: 615k

TX: 300k

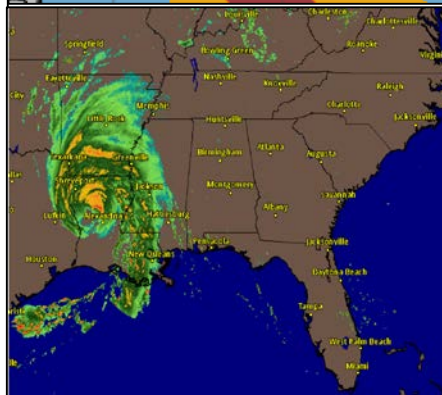
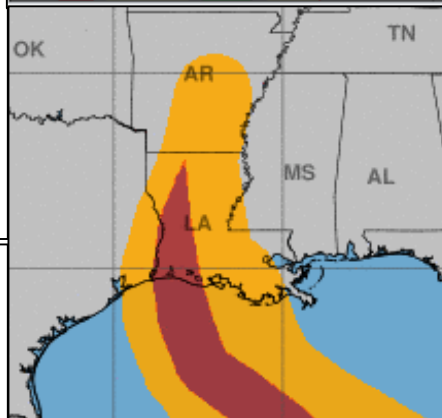
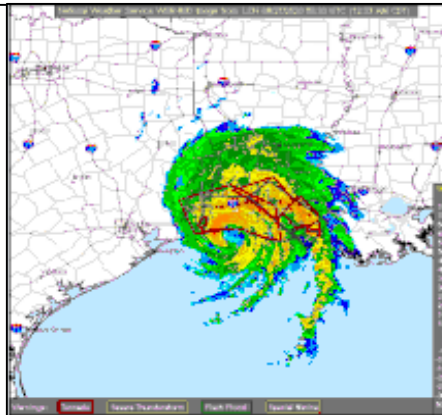
AR: 50k

TN: 20k

MS: 15k

OK: 5k

Total: 1 million



Highlights

- Hurricane Laura made landfall near **Cameron, Louisiana** on August 27th at 0100 CDT as a **Category 4** Major Hurricane with 150 mph maximum sustained winds.
- Laura was the strongest hurricane to make Louisiana landfall since 1856. - 42 U.S. deaths associated to Hurricane Laura.
- Damage estimates approaching **~\$15B**.
- 1900+ transmission structures** were damaged or destroyed.
- 430 Substations** damaged
- Most notably were the critical 500kV and 230kV structures that feed the Western/WOTAB load pockets including the Lake Charles, Louisiana area.
- 1.5M people were under evacuation orders.**
- Reliability actions taken: On August 27th, MISO issued Operating Instructions for 500 MW's of firm load shed in the Western/WOTAB TX load pockets to preserve the ~2000 MW's of load remaining.
- All customers restored by October 1st.** A few BPS transmission lines remain out of service and repairs are ongoing. The major BPS lines feeding these load pockets were restored on October 18th.

Hurricane Laura near peak intensity while approaching southwestern Louisiana on August 26

Formed August 20, 2020

Dissipated August 29, 2020

Highest winds *1-minute sustained:*
150 mph (240 km/h)

Lowest pressure 937 mbar (hPa); 27.67 inHg

Fatalities 77 total

Damage ≥ \$14.1 billion (2020 USD)

Areas affected Lesser Antilles, Greater Antilles, The Bahamas, Gulf Coast of the United States, Midwestern United States, Eastern United States

Part of the 2020 Atlantic hurricane season

Hurricane Laura - August 27, 2020



RESTORATION GUIDELINES

1. Maintain situational awareness; Respect operating limits; Remain in analyzed state
2. Restoration plan – include steps to recover from multiple contingencies, share with all key parties
3. During Recovery phase, the full range of contingency plans may involve mitigation by load shedding
4. Perfect solution not always possible; key is identifying/managing overall risk, with solid contingency plan as support.....



COORDINATION

1. MISO, Entergy, CLECO, ETEC
--close coordination w/SERC,
- unity of messaging
2. Single Point of Contact
3. Restoration Guidelines
4. Remove admin burdens
5. Given severity and extent of transmission damage, full system restoration will take longer than normal