

# ComEd 2015 Summer Preparedness

## Presentation to the Illinois Commerce Commission



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# Looking Back at 2014

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- Best safety performance on record (OSHA Recordable 0.65)
- Peak load was 19,721 MW on July 22 with no issues
- System continued to deliver strong SAIFI performance three consecutive years with and without storms (1.01 and 0.78 respectively for 2014); achieving a 99.96% reliability rate; 2.8M or 72% of customers experienced zero or one interruption
- EIMA investments benefitted 1.7M customers and reduced SAIFI by nearly 15% or 677k avoided customer interruptions
- 2014 winter was the 14th coldest on record since 1872 with 21 days recording minimum temperatures of zero or below
- Second snowiest calendar year on record (69.8”) and ninth wettest summer on record (39.7”) since 1884
- Experienced 21 storms resulting in 1.4M customer interruptions
  - 10% fewer customers affected during storms as a result of system investments such as Distribution Automation and Storm Hardening
  - 6/30 storm winds up to 110 MPH, seven tornadoes, 79k lightning strokes, 420k customer interruptions; received Edison Electric Institute Emergency Recovery Award for outstanding restoration efforts
  - 9/5 severe thunderstorm with hurricane force winds up to 80 MPH
- Storm restoration times continue to improve driven by Storm Task Force process improvements
  - Faster restoration during June 2014 storm compared to two storms in 2011; 27% faster than July 11 storm (similar damage) and 15% faster than June 21 storm (similar customer impact)
- Overall customer complaint volume lowest since 2010
  - Customer reliability complaints best on record; 11% favorable to 2013; 30% favorable to 2012



# Prepared for Summer 2015

ComEd is well positioned to respond to significant threats to the grid during the summer months

- The ComEd 90/10 summer peak load is forecasted at 24,500 MW (per PJM)
- Demand response programs are in place
- Transmission and Distribution Summer Capacity Expansion projects to complete by June 1
- Proactive annual distribution and transmission system maintenance to complete by June 1
- Significant investments in reliability continue, driven by EIMA & Grid Resiliency
- Storm Task Force is driving fourth year of continuous improvements
- Annual emergency response training and exercises in progress; expected completion date June 19
- Continuous use of customer channels such as Facebook, ComEd.com, ComEd Mobile App, and text messaging offer improved outage reporting options and customer service
- Contingency plans, spare equipment, and flood mitigation plans are in place

## 2015 Forecasted Load Performance

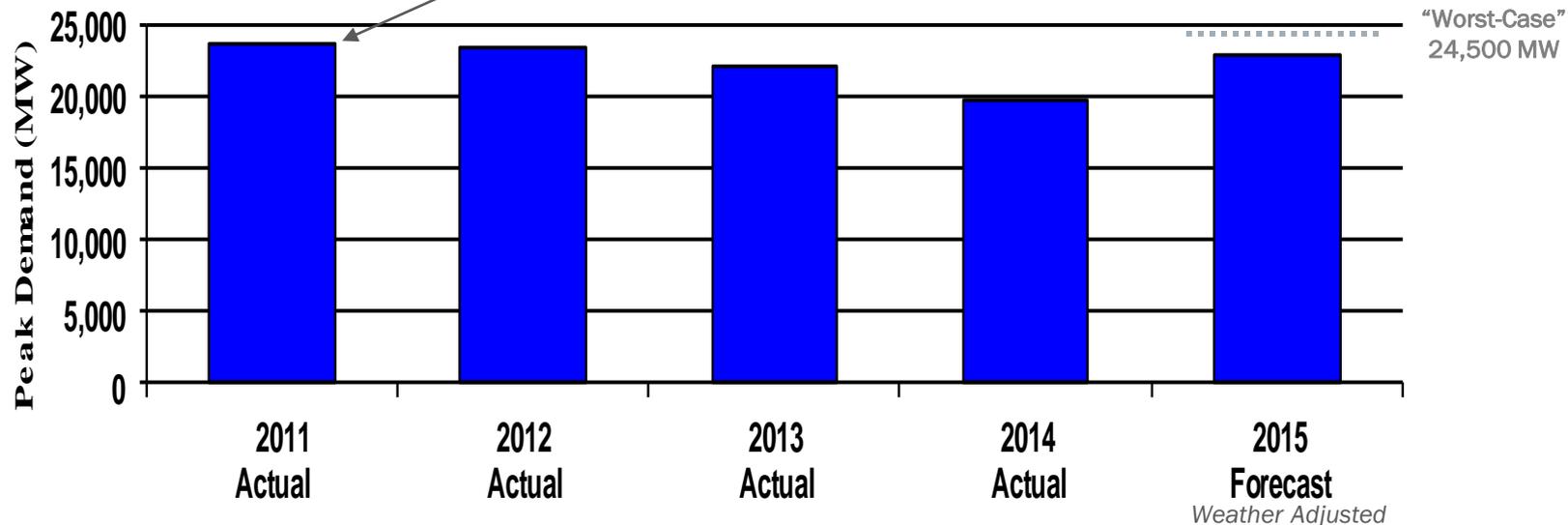
- No transmission facilities projected to be loaded above 100% of applicable ratings under normal summer peak scenarios
- No distribution substations projected to be loaded greater than 100% of applicable ratings under "worst case" summer peak scenarios
- No distribution circuits projected to be loaded greater than 105% of ratings under "worst case" summer peak scenarios



# Generation and Transmission Adequacy

Generation and transmission supply exceeds forecasted demand

**ComEd all-time system peak  
of 23,753 MW**



- “Worst-case” expected peak load is 24,500 MW (90th percentile); 22,850 MW for normal weather (50th percentile), per PJM
- No transmission constraints are expected to compromise reliability
- Generation retirements have been mitigated

## Demand Response

- Demand Response is estimated at 1,334 MW by June 1
- Over 59,000 customers enrolled in the inaugural Peak Time Savings Program
- Over 2,300 customers enrolled in the NEST/Xfinity Thermostat Program; enrollment ends May 31

# Improving Capacity and Reliability through System Investment

- 101 Capacity Expansion projects: 7 Transmission/Substation; 94 Distribution – 92 projects (91%) electrically complete
- Capacity Work and Major Reliability Upgrades
  - New Veterans Substation in Lockport and Lisle Substation upgrades completed in 2014
  - Tonne and Sawyer Intelligent Substations completed in 2014, serving O’Hare and Midway
  - Ongoing O’Hare network center upgrades: 18 SCADA cutovers planned for 2015
  - Plano upgrades to complete June 2015, includes 4 transformers & 4 345kV bus tie replacements
  - Upgraded 92 of 99 345kV lines that were on analog microwave system
  - Grand Prairie Gateway Project – New 345V line connecting Byron and Wayne substations  
Construction starting in 2015; to complete June 2017 (~60 miles)
- Overhead Transmission Line Investment
  - Tower raising for improved clearance and increased capacity
  - Utilizing new conductor, reducing tower modification costs
  - Phase raiser system installed on energized H-frame structures
  - Aerial Crane utilized to decrease cycle time on new line construction
  - 316 transmission wood structures removed and replaced with steel structures in 2014; 461 planned for 2015
- Generation Retirement Preparedness
  - New Waukegan substation completed 2014
  - Fisk and Crawford Retirements
    - Burnham Taylor Line upgrades completed
    - Prospect Heights Static Var Compensator completed
    - Crawford Static Var Compensator to complete in 2016

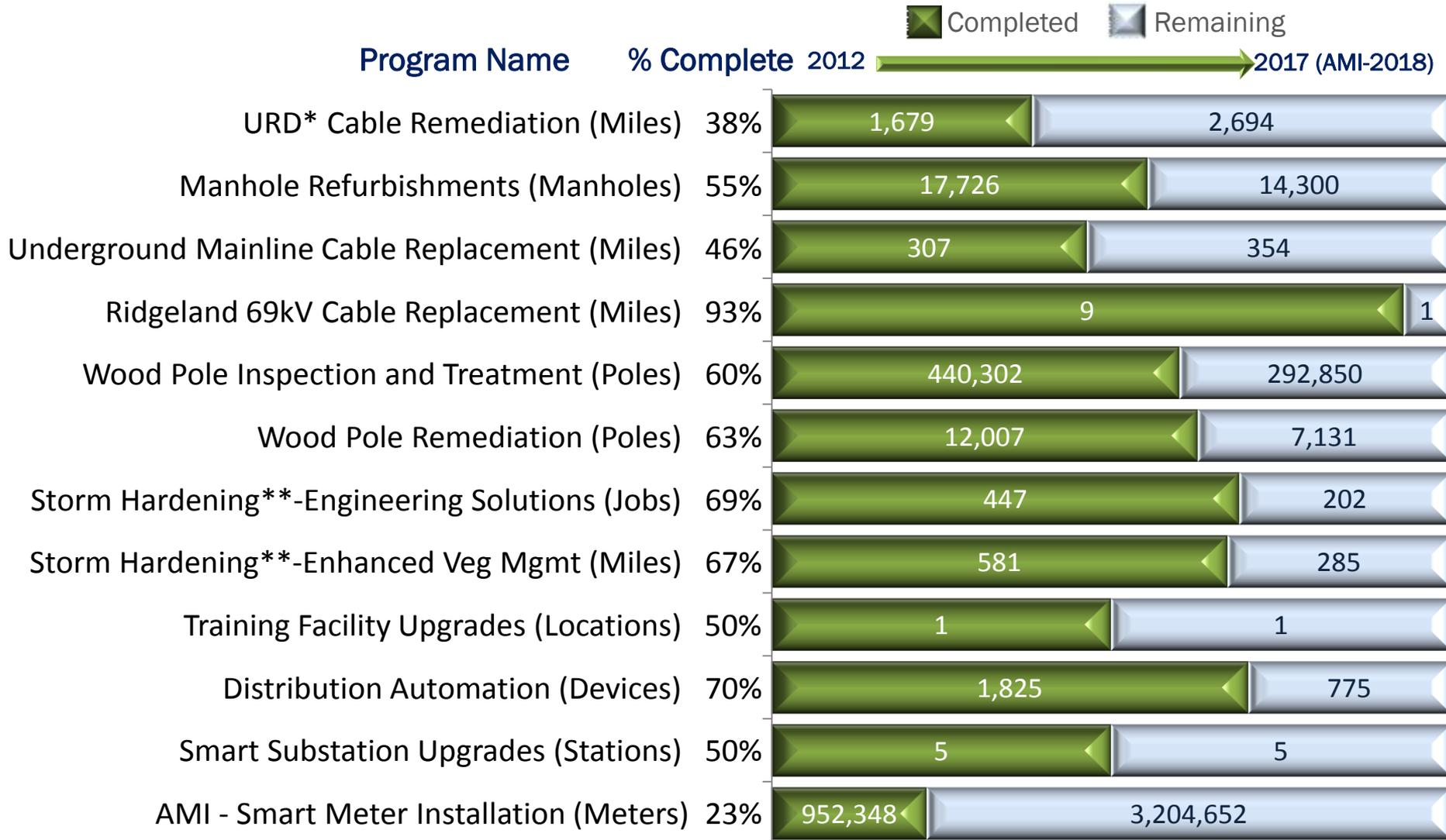
*Aerial  
Transmission  
Pole Setting*

*Tonne  
Substation*



# EIMA Investments Improving Service

57% of the program work is complete benefiting 1.7M customers through March 2015



\* URD = Underground Residential Distribution

\*\* Remaining scope are estimates - developed annually based on criteria

# Investments Improving Service – Inception To Date Through March 2015

## EIMA Benefits – 1.37M Total Avoided Customer Interruptions (ACI)

- Distribution Automation Programs avoided 643k customer interruptions; benefitting 64% of customer served
- Mainline Cable Programs avoided 508 Cable Faults or 397k customer interruptions; 2014 636 faults is best in a decade
- Underground Residential Distribution (URD) Cable Programs avoided 2,923 Cable Faults or 239k customer interruptions; 5,822 URD faults in 2014 are lowest (best) in 4 years
- Storm Hardening Programs avoided 553k customer interruption hours or 92k customer interruptions
- Advanced Metering Infrastructure eliminated 12.2 million manual meter reads

## Reliability Targeted Solutions on track

- Engineering Solutions; benefits 168 municipalities
  - Overhead to Underground Solutions completed 37 projects (21.4 miles)
    - 50 projects remaining in 2015 (41.6 miles)
  - Spacer Cable Solutions completed 170 projects (74.6 miles)
    - 111 projects remaining in 2015 (78 miles)
  - Reconductoring and rerouting solutions completed 49,000 feet
    - 46 projects remaining in 2015
- Enhanced Vegetation Management; benefits 166 municipalities
  - Miles worked: 581; Circuits worked: 481
  - Trees Trimmed: 37,800; Removed: 32,200
  - Removed 48% of trees worked, which is a long term benefit to the system
  - Enhanced outreach to customers prior to and after tree trimming
  - Investments in vegetation management have increased by 20% over 2011
- Collaborated with Arbor Day Foundation to offer free low-growing trees to customers who recently had vegetation management work on their properties
- Lightning Enhancements; 16 of 17 circuits complete
- 1% SAIFI/CAIFI system performance; 38 of 63 circuits complete
- Distribution Cycle Trimming; 388 of 1,315 circuits complete

Enhanced Vegetation Management



Before

After

**FREE TREES  
TO PICK AND PLANT**



You may be eligible for **FREE** trees!

Compliments of ComEd  
and the Arbor Day Foundation  
An Exelon Company

# Emergency Preparedness

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## Storm Response Improvements

- Enhanced focus around public, contractor and ComEd Safety
- Streamlined processes and reporting to improve Wire Watching
- Instituted formal processes around Gray Sky Events
- Improved Outage Communications through creation of a phased in approach
- Pilot executed to identify a Damage Assessment application solution
- Increased oversight on our Mutual Assistance crews to drive productivity

*June 30, 2014 Storm Restoration Base Camp  
Joliet Junior College*



## Mutual Assistance

- Participant in Edison Electric Institute (EEI) National Response Event process designed to enhance process for sharing resources among utilities for a major, national event (i.e. Hurricane Sandy)
- Active member in three Regional Mutual Assistance Groups: Great Lakes (14 members), Midwest (32 members), and Southeastern Electric Exchange (53 members)
- Expanded Base Camp locations for effective, efficient in-processing and assignment of work for mutual assistance crews nearby storm damage
- Participant in EEI Spare Transformer Equipment Program (STEP) to meet critical equipment demand during Department of Homeland Security Events

# Emergency Preparedness Operational Exercises

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## Blackout Restoration Preparedness

- Multi-department exercise took place January 22
- Area Operators were deployed to key switching locations for field familiarization
- PJM exercise occurred on February 24-25 with all three Operating Companies; TSO and DSO participated using the BPO training simulator

Partnered with OEMC and City of Chicago agencies on a Load Shed Workshop to educate and train on expectations and response from each agency January 23

## Feeder Task Force Exercise

- ComEd, BGE and PECO conducted an exercise in Chicago on March 31 - April 2 with a Feeder Task Force team and Emergency Preparedness Support personnel representing each company
- ## Emergency Preparedness Executive Storm Response Symposium
- ComEd & EEL co-hosting May 21-22 event in Chicago with company leaders from 15 companies
  - Discuss optimal approaches for major incident response/recovery and share best practices

Additional Preparedness Drills/Exercises: Summer Readiness, Cyber Security, Substation Event/Fire, Load Shed, Joint Operation Centers (JOC); EU National Response Event (NRE)

## Statewide Exercise – Scheduled for June 19

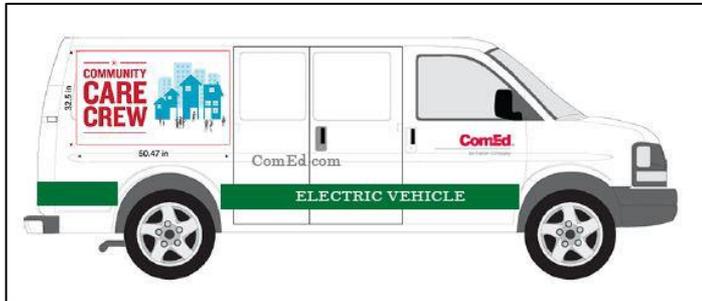
- Focus will be on Energy, Water, Communications and Transportation sectors
  - Scenario: Heat wave followed by many tornadoes across state of Illinois
  - Objectives include Responder Health/Safety, Communications, EOC Management, Critical Logistics and Distribution, and Restoration of Lifelines
  - Partnering with Ameren-Illinois, IEMA, and Cook County DHSEM with participation from American Red Cross, BP, Caterpillar, Comcast, DuPage County OHSEM, FEMA Region V, Metropolitan Water Reclamation District, Sears, Sprint, Walgreens, Will County EMA, etc.

# Emergency Preparedness

Added a new Mobile Command Unit to our fleet of Mobile Command Centers bringing total to four

- Rapid response deployment
- More efficient deployment for Mutual Assistance
- Can be set up in any type of terrain
- Utilized primarily for dispatching functions and Incident Command
- Can be used for several type of incidents including Feeder Restoration teams, significant damage to critical infrastructure or facility, serious injury or fatality or substation events

The ComEd Community Care Van will help support customers by providing mobile hotspots, mobile device charging stations, access to outage information via the ComEd Outage map, water/ice and direct access to ComEd resources



# Contingency Planning

## Emergency Equipment Ready and Available for Storm Season

- Six Mobile Substations
- 2 MW Generators – 17 ComEd owned units, with additional generators on standby with vendor
- 29 Portable Generators (125kVA, 175kVA, and 250kVA)
- Spare substation transformer fleet includes:

Transformer Class	Units on System	Spare Inventory
33 MVA	26	3
40 MVA	576	11
50-60 MVA	132	6
75 MVA	11	3
200 MVA	27	2
300 MVA	85	3
1000 MVA	15	2



Portable transformer at substation deployment exercise



Station flood gate

## Supply Readiness

- Restocking Mobile Storm Trailers following every event – four major, four minor, and one safety
- Summer Readiness items (storm kits, transformers, wire/cable) verified at stocking levels and key suppliers have ramped up their ‘stock on hand’ for summer related items

## Substation Flood Mitigation Plans

- Permanent flood mitigation measures are in place at 3 of the 4 flood prone substations

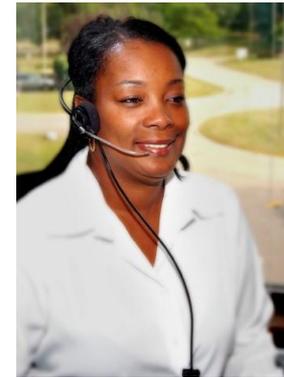
# Communicating with Our Customers

## Estimated Time of Restoration (ETR) Strategy

- Communication strategy tailored to size, type, and phase of the event

## Call Center

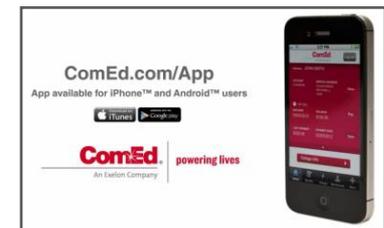
- On-boarding underway for 112 temp Customer Service Representatives to accommodate summer storm call volumes
- Two separate facilities for back-up during Business Continuity events



Customer Service Representative

## Reaching Customers through Technology

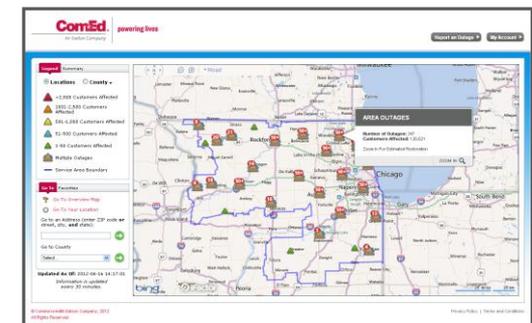
- Outage status and probable cause available through all self-service channels
- Ability for customers to report outages without logging into ComEd.com
  - no userid or password required
- Redesigned mobile site includes access to Storm Center
- Mobile App – In 2014, customers completed over 3.3 million transactions



ComEd App

## Outage Communications

- Community Care Crews available for deployment during events
- Outage Alert - Over 197,000 customers are subscribed for outage alert text messaging
- Redesigned messaging to be more detailed and customer focused
- Upgraded Municipal Portal; more user friendly and mobile-capable



ComEd Outage Map

# Conclusion

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## *ComEd...*

...is prepared to address significant threats to the grid during the summer months of 2015

- Transmission and Distribution facilities are ready to meet 2015 Forecasted Load
- Transmission and Distribution Summer Capacity Expansion projects and proactive annual maintenance on track to complete by June 1
- Storm response improvements, preparedness drills and exercises ensuring readiness
- Customer Service channels are ready to respond to customer inquires

## **Questions ?**