

Indiana Utility Regulatory Commission

2023 Summer Reliability Forum



May 3, 2023



aes Indiana Team



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President and CEO



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Chief Commercial Officer



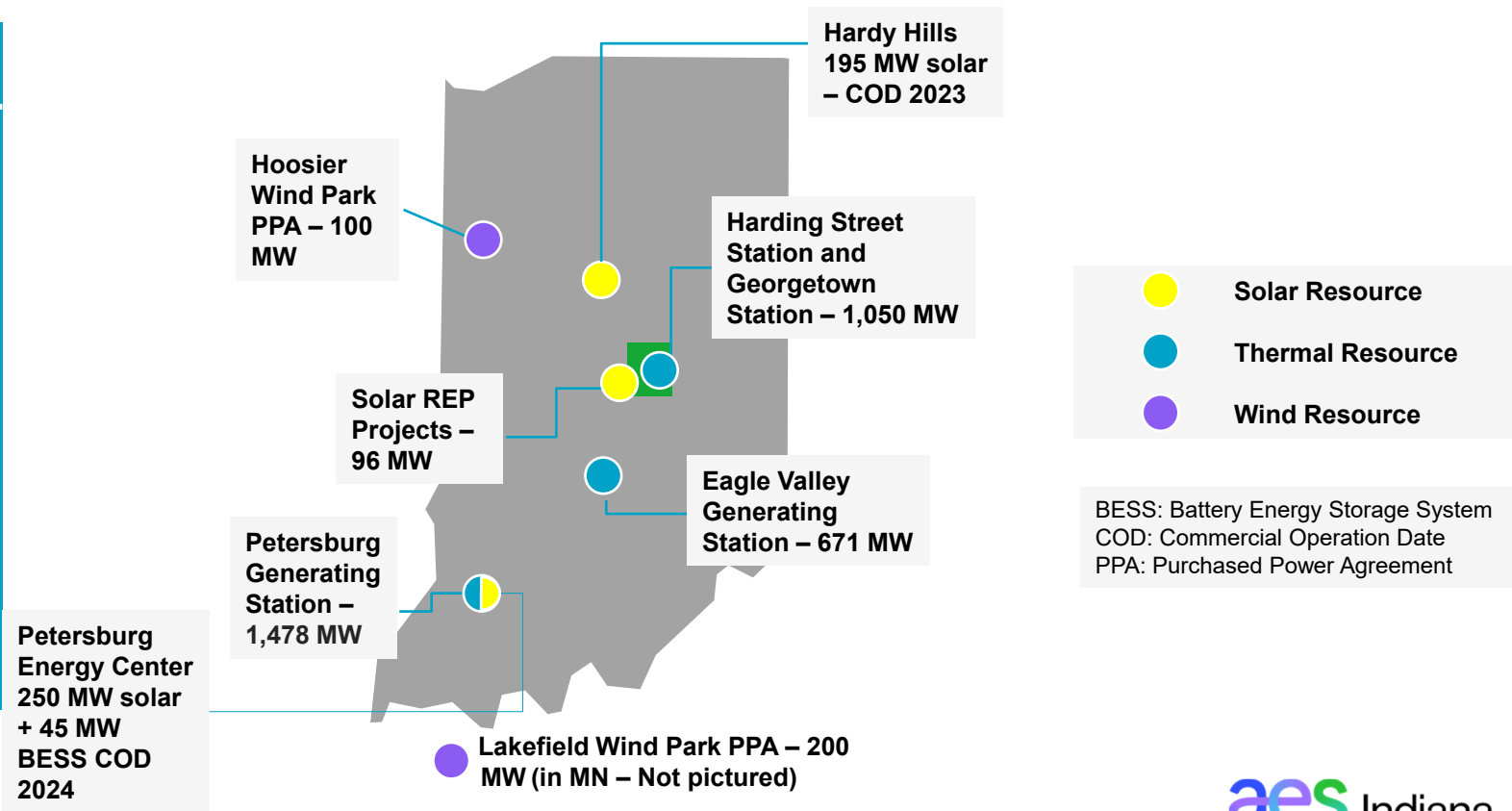
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Chief Operating Officer



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aes Indiana

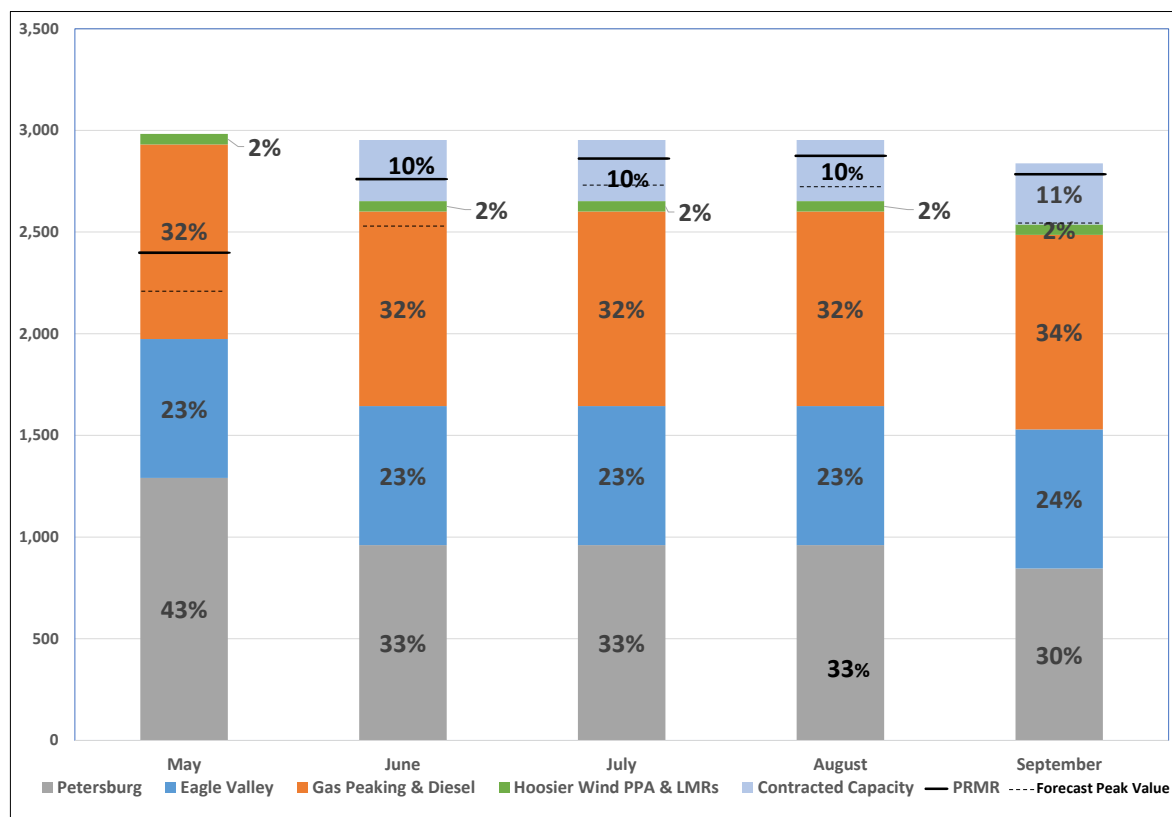
- 528 square miles
- 8 counties in Indiana
- 512,000 regulated customers
 - 451,735 Residential
 - 55,239 Commercial
 - 4,567 Industrial



Summer Load and Supply Summary

AES Indiana has capacity resources for reliable Summer supply:

- Generation shown as MISO Seasonal Accredited Capacity
- Capacity exceeds load Planning Reserve Margin Requirement (PRMR) in every month
- Awaiting results of the Planning Resource Auction



Transition to Seasonal Reliability Construct

Construct Design

- Seasonal Design accounts for different conditions in each season as opposed to the previous summer-focused annual design: AES Indiana agrees that accounting for seasonal differences in resource availability and peaks is conceptually appropriate
- Resource Adequacy Hours metric that focuses on 65 hours per season increases volatility of accreditation values seasonally and from year-to-year

Construct Implementation

- Planned outages to support reliability that last longer than 31 days in a season are penalized under the new construct and outages may have a more dramatic impact on future accreditation, making projections more difficult
- Accreditation values have gone through major revisions during the implementation making planning difficult for this year
- The most recent revision reduced most accreditation values, reset bilateral capacity transfers, and delayed the Planning Resource Auction from March 28th to April 18th creating challenges for planning and for credit and payment between counterparties

Outages & Generation Needs

Planned and Summer Preparation Outages

- All outages are coordinated with our Commercial Operations & Resource Planning Team and MISO
- Target 6/21 for completion of all outages
- Address potential reliability issues
- Ensure heat exchangers are working well
- Check all AC and ventilation systems



Supply Chain Impacts on Operations

Generation

- Increased lead times seen across a variety of equipment
 - Potential to delay some scheduled projects and increase repair times
- Plants reviewing stock items and critical spares
 - Adding new items to stock due to extended lead times
 - Purchasing extra critical spares as needed to ensure reliability

T&D

- Increased lead times seen for many critical stock items
 - Increased effort by Work Schedulers to adjust schedules to meet requirements for customer driven projects
- Increased advance purchasing of critical stock items
 - Distribution Transformers, both Overhead and Underground
 - Poles
 - Wire and Cable
 - Ancillary materials like brackets and insulators

Generation: Proactive Management of Extreme Weather

Safety is always first

2 Months Out

- Complete summer prep outages
- Review extreme weather policies, plans and procedures
- Inspect lightning arresters
- Verify tornado shelters are in acceptable condition
- Verify weather warning notification system
- Place transformer fans in manual on
- Stage air movers where necessary

1 Week Out

- Review status of equipment and lineups
- Review applicable Emergency Action Plans
- Verify weather radios in control rooms work
- Monitor weather

2 Days Out

- Verify cooler cleanliness
- Verify cooling systems are operating correctly
- Test siren system
- Monitor weather

1 Day Out

- Schedule additional staffing for emergency response in extreme weather events
- Last minute check of cooling systems
- Monitor weather
- In the event of hot weather, start necessary air movers

T&D Operations: Proactive management of extreme weather

7+ Days Out

- Constantly monitoring Weather at least 7 days out, using National Weather Service (“NWS”) and Private Weather Services
- Monitor Storm Prediction Center Convection Forecast days 4-8

2-3 Days Out

- Internal discussions taking place daily on operations & staffing
- Monitoring NWS Storm Prediction Center Convection Forecast for next 3 days and forecast from Private Weather Services
- Transmission Operations begins looking at maintenance outages that can be recalled, return lines & equipment to service to the extent possible
- Supply Chain is checking critical materials levels for common storm restoration material

1 Day Out

- Monitor NWS Storm Prediction Center Severe Weather outlook focus on Day 1 and Day 2 Outlooks
- Transmission Operations would declare Conservative Operations [Depending on the areas affected, MISO may also declare Conservative Operations for portions of the MISO footprint]
- Schedule additional staffing around the clock for outage response

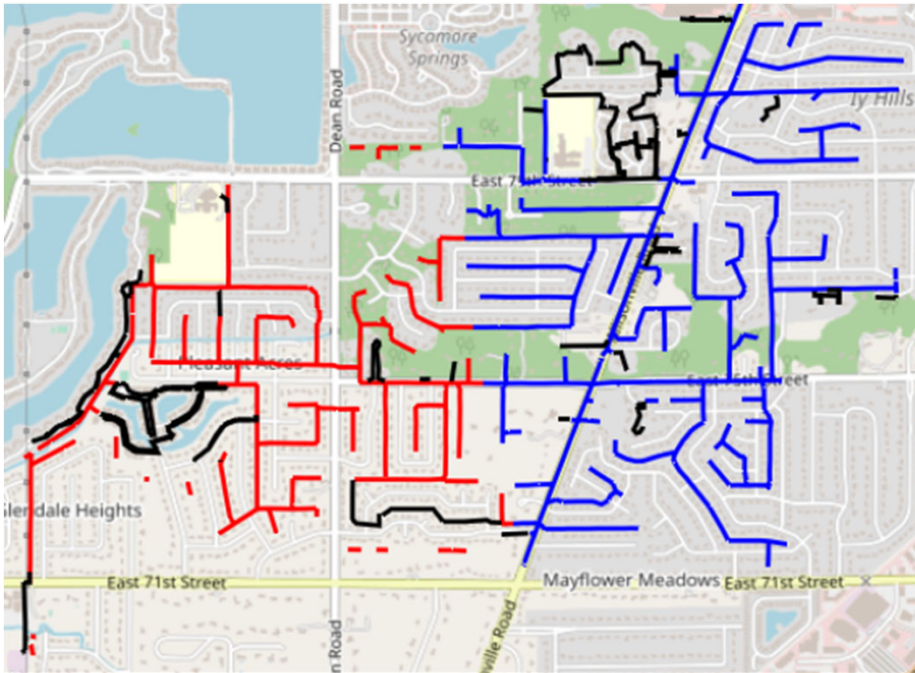
Day Of

- Adjust Staffing Schedule based on current conditions and latest forecast
- Activate On-Call Storm Team
- Activate and man Emergency Command Center if conditions warrant
- Monitor weather radar, lightning network, and storm reports to the west of our system.
- With Declared Storm begin storm status calls



Vegetation Management

AES Indiana's Vegetation Management AI Tool



ISSUES

- Contract labor issues
- 88% of all investigated outages were due to tree-related issues.
 - 98% of all tree-related outages were due to non-hazardous trees
- Ash trees continue to be an issue (continual decay with no access to mitigate)

INITIATIVES

- Increased non-storm vegetation management spending to \$15,032,693 in 2022, which is roughly \$4.5 million over the budgeted amount.
- Implemented an AI tool on several circuits to identify where vegetation management efforts should be focused to improve circuit reliability.
- Targeted circuit trim, based off time since last trim and impact on SAIFI/SAIDI (data analytics approach)
- Hazard Tree program to mitigate trees outside the trim zone (up to 45' from conductor) utilizing ISA Tree Risk Assessment Qualified Inspectors to identify
- Increase overhang clearance from 15' to removing all overhang of species with weak branching structure

10 **Legend:** — Most Important — Less Important — Underground

aes Indiana revAMP

In the 4th year of 7-Year Plan designed to achieve:

- Fewer outages and shorter duration of outages
- Improved reliability
- A more resilient system to face growing energy needs



Project	Quantity (12/31/22)	Unit
Circuit Rebuilds	157	Miles
Substation Asset Replacement	65	Projects
4 kV Conversion	13	Circuits
Tap Reliability Improvement Projects (TRIPS)	254,586	Feet
XLPE Cable Replacement	1,773,615	Feet
Distribution Automation	521	Reclosers

We are prudently managing our fuel supply in current market conditions



→ Onsite Inventories

- Maintain onsite coal inventories to address potential supply disruptions
- Coal 100% hedged for 2023
 - including high range of inventory for summer
- Maintain higher than historical fuel oil onsite for Harding Street dual fuel units



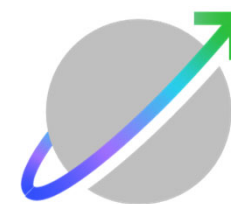
→ Natural Gas Transportation

- Firm transportation on Texas Gas Transmission (“TGT”), PEPL, Trunkline, and Rockies Express (“REX”) pipelines
- Fixed price natural gas hedge for Eagle Valley CCGT
- REX supply purchases include firm pipeline transportation
 - Increases firm capacity overall – supports firm transport and reliability for Harding Street
- Contracted Citizens storage



→ Communication with Supply and Logistics

- Be prepared – get ready for the season internal and external
- 20-day look forward – monitor weather and plan for potential events
- During an event – hyper-communicate as appropriate to recognize and address issues in addition to normal daily calls



→ MISO

- Follow MISO protocol
- Generation operators in continuous contact with MISO
- Monitor Multiday Operating Margin Forecast Report to anticipate critical days

Impact of Renewable Energy Resources on Meeting Customer Demands

Generation & Fuels

- Renewable energy resource variability considered in the AES Indiana's planning, including the 2022 IRP – Company conducted robust reliability analysis that assessed resource and energy adequacy of the candidate portfolios to ensure customer demands are met in all seasons
- Current penetration of renewable energy within MISO is still relatively low – however, Company is closely monitoring for “Grid Inflection Points” as identified in MISO's RIIA study.¹
- Company's fuel inventories for this summer not materially impacted due to currently low mix of renewables in the Company's generation portfolio

T&D

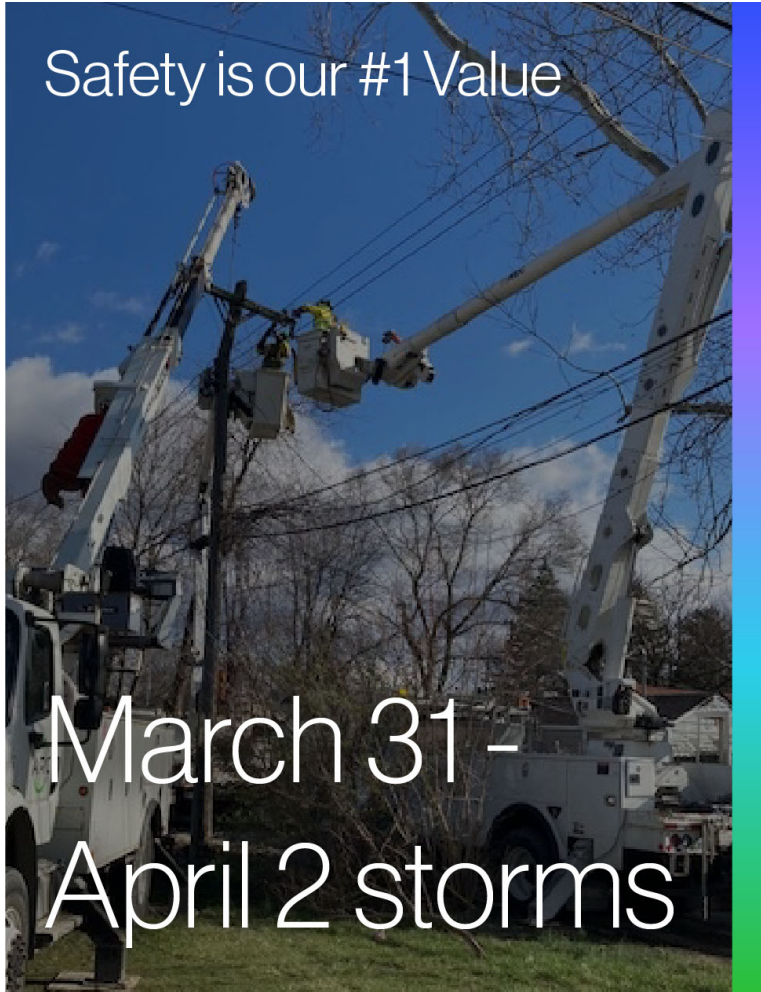
- Change in distribution circuit power flow directions and operations may require facility upgrades
- Consideration for changes on circuit outage restoration process
- Managing circuit voltage profile
- Potential for islanding and how to handle reconnection

RTO Changes & Impacts

We continue to monitor and engage with MISO as they seek to implement:

- Updated accreditation methods
 - Non-thermal accreditation, AES Indiana fleet transition & IRP implementation
- FERC Order 2222
 - Roles and responsibilities, planning and operation of a modern distribution system, cost to participate
- Transmission Planning
 - Long Range Transmission Planning Tranche 2 projects in Indiana, potential oversight of Independent Transmission Monitor

Safety is our #1 Value



March 31 -
April 2 storms

Outages

22,000

customers affected

140

outage incidents

Crews

49

Line crews

21

Tree crews

Damage

10

damaged distribution
transformers

10

damaged
transmission towers

32

broken
poles

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Supporting our customers today and well into the future



Billing and Payment Assistance



Energy Efficiency Programs



Elevating our Customer Focus

Leading the inclusive, clean energy transition



Customer

Create value in how we serve customers today to become their energy partner in the future.



Smart Grid

Use new technologies across our value chain to create the resilient grid of the future.



Sustainability

Maintain reliability and affordability while driving lower carbon emissions.



Workforce of the Future

Work differently, using new technologies and skills. Strengthen our culture of safety, innovation and belonging.

Facilitate economic and community development

Q&A