Generation Outage Review

Michael Kelly

Principal Engineer, Generation

Market Implementation Committee

November 4th, 2026

Disclaimer: While materials are current at the time of publishing, applicable requirements may change. PJM Governing Documents control.

PJM © 2026

Generation Outages

OUTAGE TYPES AT A GLANCE

Planned outages

- **Submittal > 30 days**

PURPOSE

- Support long-term unit reliability
- Preserve equipment health
- Extend asset life
- Reduce future forced-outage risk

TYPICAL WORK

- Major equipment inspections
- Turbine / generator overhauls
- Electrical equipment upgrades
- Preventive maintenance
- Life extension projects
- Time and condition-based maintenance

Maintenance outages

- **Submittal > 3 days**
- **Subject to Recall**

PURPOSE

- Correct emerging issues
- Improve seasonal readiness
- Maintain operational reliability

TYPICAL WORK

- Pre-emergency repairs
- Corrective maintenance
- Emerging safety & environmental concerns
- Equipment inspections
- Seasonal readiness activities
- Testing and calibration
- Minor maintenance activities

Unplanned outages

PURPOSE

- Address immediate equipment needs
- Restore availability after a trip
- Return units to service safely
- PJM Deny Outages

TYPICAL WORK

- Equipment in need of immediate repairs
- Troubleshooting & diagnostics
- Component repair or replacement
- Return to service testing

PJM © 2026

What Goes into a Generation Outage Study

SUBMISSION & REVIEW

SUBMISSION APPROACH

Requests are reviewed as they arrive first come, first served.

ADVANCE SUBMISSION

EARLIER IS BETTER

No limit on how far ahead a request may be submitted.

DETAILED REVIEW

Each request is evaluated against the same set of system, coordination, scope, and risk considerations.

- Transmission conflicts
- Black Start impacts
- Reliability impacts
- Generator outage reserve margins
- Existing generator outages
- Generation / transmission outage alignment
- Outage duration vs. work scope
- Weather forecast & risk

PJM © 2026

Pre & Post Event Activities

Confirm scheduled returns

Confirm return timing with units whose outages are scheduled to end before a potential event.

Reality check: units have not consistently returned on schedule.

Shift upcoming outages

Assess outages not yet started that would overlap the potential event window.

Emergency procedures

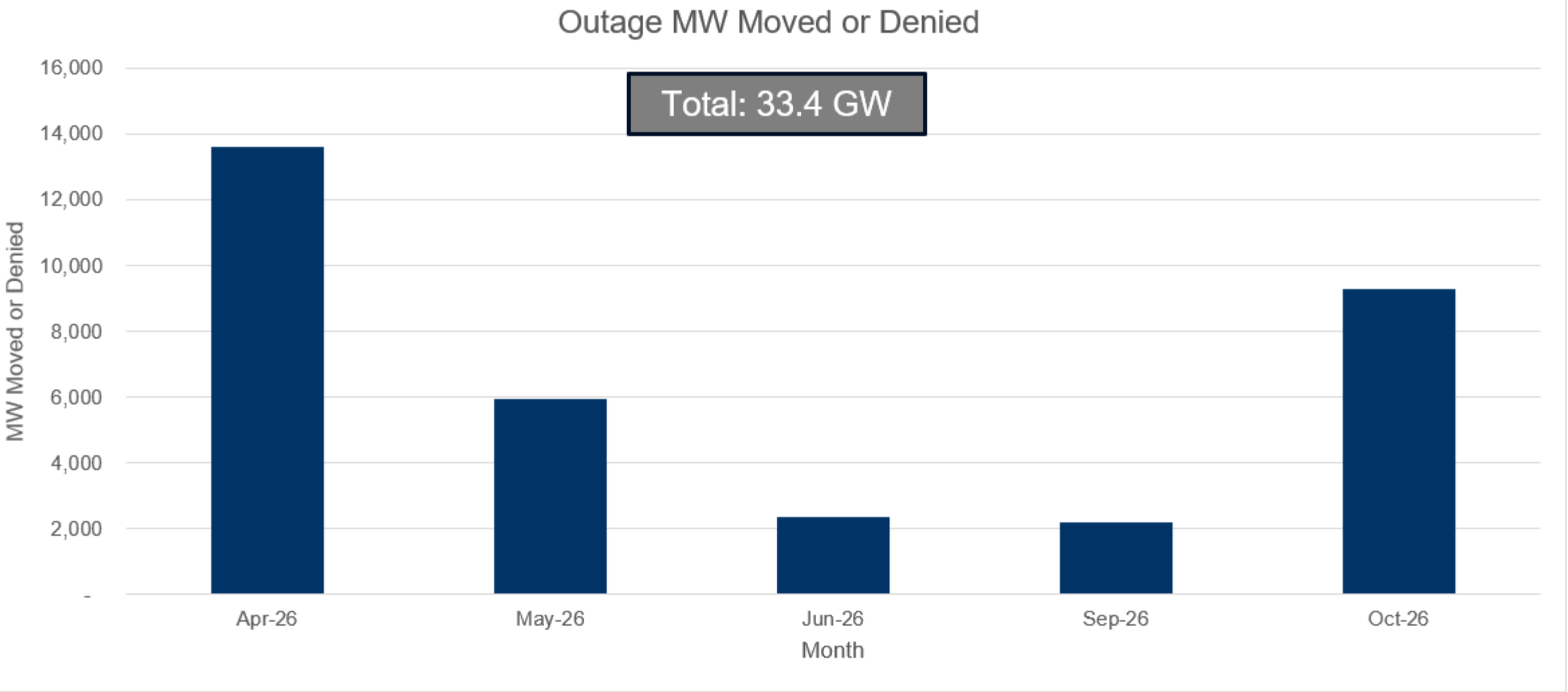
Capacity Advisory, Maintenance Outage Recall, Max Generation Emergency Alert, etc.

Coordinate recovery

Coordinate with generation units to reschedule outages and manage downstream impacts to other generation, black start reliability, and transmission outages. In an already tight window, a move is never simple.

PJM © 2026

Outage Moves and Denials



PJM © 2026

Every Moved Outage Has a Price Tag

FOUR COMPOUNDING CONSEQUENCES

Labor cost

Crews mobilize 4–7 days before an outage. A late move can idle or demobilize 100–250+ contractors. Pre-scheduled Labor and Equipment logistics become challenging.

Reputation & quality drop

Repeated outage moves damage the plant's reputation as a reliable customer. Preferred A/B teams prioritize dependable clients, leaving the plant with second/third-tier contractors or vendors C/D teams, resulting in lower work quality and extended time to perform work.

Deferred maintenance

Shorter windows and limited contractor availability cut inspections and repairs; worn equipment remains in service.

Unpredictable availability

Shifting start and return dates undermine owner and PJM planning; complicating staffing, budgets, and unit availability.

PJM © 2026

Today's Relief Becomes Tomorrow's Risk

THE DEBT FEEDBACK LOOP

DEFER THE OUTAGE

The system gets short-term relief.

ERODE THE WORK SCOPE

Preventive/Corrective work is cut, the same work that may have prevented the failure.

BREAKDOWNS RETURN

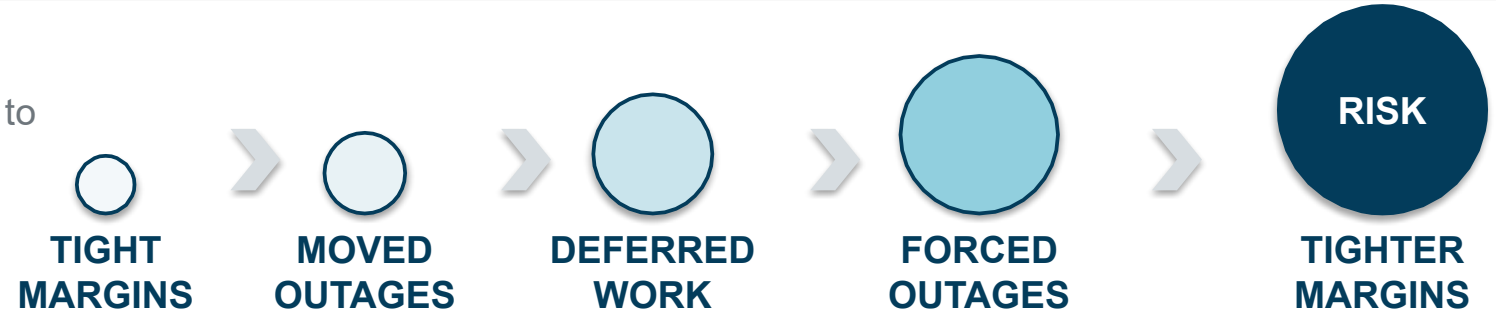
Forced outages tend to hit on high-stress, tight-margin days.

THREATEN PLANNING

Shifting return dates and rising forced outages weaken reserve planning.

THE SNOWBALL EFFECT

Each deferral adds pressure to the next planning decision.



PJM © 2026

Contact

Chair:
Jason Shoemaker,
Jason.Shoemaker@pjm.com

Secretary:
Stefan Starkov,
Stefan.Starkov@pjm.com

Presenter:
Mike Kelly,
Michael.Kelly@pjm.com

Generation Outage Review

Member Hotline

(610) 666-8980

(866) 400-8980

custsvc@pjm.com

PJM © 2026

PROTECT THE POWER GRID

THINK BEFORE YOU CLICK!

pjm

BE ALERT TO MALICIOUS PHISHING EMAILS

Report suspicious email activity to PJM.

Call (610) 666-2244 or email it_ops_ctr_shift@pjm.com

PJM © 2026