



# PJM Load Management Test Proposal 1a and 1a'

Markets & Reliability Committee  
October 31, 2019

## Avoid unnecessary testing

Test only required when there is no event

Only 1 test per year

## Balance “real life” test with cost

PJM directed test  
Test hour unknown in advance  
Test year round

Re-test/Do-over for unforeseen issues

Advanced notification to prepare and schedule maintenance

## Energy market compensation

Direct/simple energy market compensation

Self schedule (price taker) to avoid uplift

PJM proposal modified several times to meet stakeholder identified interests

PJM notifies CSP of zones to be tested

I know test can only take place on 20 potential days

I also know there will be no tests in any other zones. Get maintenance done there

PJM notifies CSP by 10am that test will be tomorrow

I know test is tomorrow and I have at least 13 hours to prepare

Check that my generator can start

AUGUST

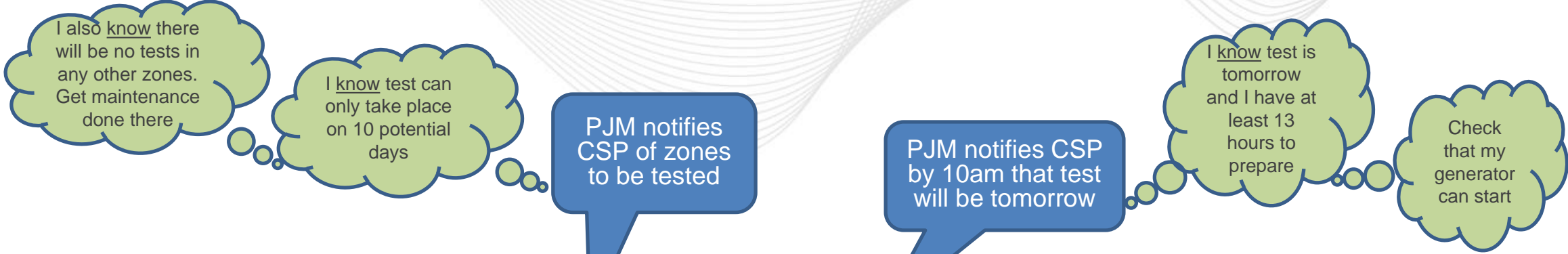
SEPTEMBER

	8/21/19	8/22/19	8/23/19	8/24/19	8/25/19	8/26/19	8/27/19	8/28/19	8/29/19	8/30/19	8/31/19	9/1/19	9/2/19	9/3/19	9/4/19	9/5/19	9/6/19	9/7/19	9/8/19	9/9/19	9/10/19	9/11/19	9/12/19	9/13/19	9/14/19	9/15/19	9/16/19	9/17/19	9/18/19	9/19/19	9/20/19	9/21/19	9/22/19	9/23/19	9/24/19	9/25/19	9/26/19	9/27/19	9/28/19	9/29/19	9/30/19		
Potential Test Days														X	X	X	X			X	X	X	X	X			X	X	X	X	X			X	X	X	X	X			X		
Actual Test Day																												X															X

PJM notifies CSP with normal lead time

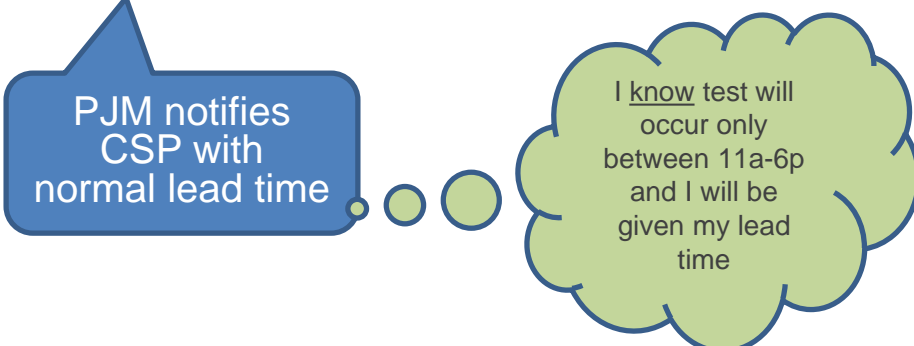
I know test will occur only between 11a-6p and I will be given my lead time

Each zone tested one day per year for only 2 hours.



## July

	7/1/2019	7/2/2019	7/3/2019	7/4/2019	7/5/2019	7/6/2019	7/7/2019	7/8/2019	7/9/2019	7/10/2019	7/11/2019	7/12/2019	7/13/2019	7/14/2019	7/15/2019	7/16/2019	7/17/2019	7/18/2019	7/19/2019	7/20/2019	7/21/2019	7/22/2019	7/23/2019	7/24/2019	7/25/2019	7/26/2019	7/27/2019	7/28/2019	7/29/2019	7/30/2019	7/31/2019
Potential Test Days															X	X	X	X	X			X	X	X	X	X					
Actual Test Day																	X														



Each zone tested one day per year for only 2 hours.

## Test Score greater than 75%

- CSP scheduled retesting

## Test Score 75% or lower

- PJM scheduled retest

Registrations that individually scored  $< 100\%$  can be included in retest

## Better Simulate Event Conditions

- Avoid CSP “open book” test with unlimited Do-over’s

## Tests throughout the Delivery Year

- CP DR is required to perform throughout the Delivery Year

## Leverage Notification System Used in Actual Events

- Web service communication not currently tested

Significant modification to original proposal to address key CSP concerns of unnecessary testing and cost mitigation

# Appendix



## PJM Proposal 1a – PJM schedules test, CSP schedules retest(s) or PJM schedules retest based on test performance

- PJM managed test will better simulate event conditions and therefore actual DR load reduction capability
  - Avoid CSP “open book” test with unlimited Do-over’s
- Conduct test throughout the Delivery Year since DR is required to perform throughout the Delivery Year
- Leverage communication/notification mechanism used for real events.

High Impact / Low Frequency event – requires training/practice/testing to be ready.  
DR only dispatched when we are in emergency conditions (expected to be short on reserves)



## Modified proposal to address key CSP concerns: Minimize unnecessary testing and mitigate costs

- Testing only required when there is no event in the Delivery Year
- Only 1 test per year required when there is no event
  - ½ the zones tested in the summer and ½ tested in the winter
- Only test for 2 hours whereas typical events are ~ 5 hours
  - load reduction averaged over 2 hours, provides more flexibility in case load reduction starts late.
- Compensate for load reductions in the energy market as a price taker to help offset cost.

- Allow CSP to get prepared and schedule necessary maintenance activities
  - PJM will provide month ahead and day ahead notification of zones that will be tested
    - PJM will provide normal lead time advanced notification on the test day.
  - PJM will test when notified unless there is a reliability issue
    - CSP knows there will be a test and can get ready. For events, the CSP needs to get ready (more cost) but in most cases the event does not occur
  - Testing only done from HE12-18 which is in line with summer peak, winter second peak and normal workday
    - Avoid winter early morning test which would require personnel to be ready before typical work hours.
    - Narrow window allows CSP to better prepare for test
  - Testing only done on non-NERC holiday weekdays

## Ability to retest (“do-over”) and/or improve score if CSP has unforeseen problem

- Performance aggregated to zone
  - customer over-performance can offset another customer’s underperformance
- Allow CSP to self direct zonal retest(s) if performance >75%.
  - More chances to test if performance was decent but had a few issues
  - Leverage status quo CSP directed retest provisions
    - minimize rule changes
    - provide retest flexibility (multiple retests, only registrations that had performance issue are retested)
- Allow CSP to have one time PJM directed retest if performance <=75%
  - CSP notifies PJM with list of registration to retest and PJM will retest with day ahead notification.
    - CSP not required to retest all registration together, only registrations that had performance issue are retested.

## give CSPs plenty of time to adjust to new requirements

- PJM proposes to wait to implement new rules until 23/24 Delivery Year
  - New test requirements apply to new Capacity commitments (May 2020, BRA)
  - Allows CSPs to incorporate into contracts
  - Provides CSPs 3 years to get ready to implement the new test requirements
- PJM can run mock test dispatch in interim years where CSP schedule test under status quo but uses PJM test dispatch to practice.

# PJM Proposal 3 – PJM schedules test, CSP schedules retest (more closely simulates events)

- PJM schedules tests with day ahead notice
  - PJM will provide normal lead time advanced notification on the test day
  - Leverage communication/notification mechanism used for real events
- Test duration is 5 hours
- Tests can occur on any day of year
- Tests can occur during any hour of day as defined by the product
  - Summer, 10AM-10PM
  - Winter, 6AM-9PM
- Test performance >75%, CSP can schedule retests
  - Score of 75% or less, result is final
- Compensate for load reductions in the energy market as a price taker to help offset cost

- PJM notifies CSPs on 8/21 that test will be conducted in September
  - CSP knows test will be on 1 of the 20 weekdays from 11am to 6pm
- PJM notifies CSP on 9/16 at 10am that test will be on 9/17 (11am to 6pm)
  - CSP knows test will occur tomorrow from 11am to 6pm and can prepare
- PJM notifies CSP on 9/17 at 1:30pm that load reduction must start at 2pm
  - Assumes 30 minute lead time for simplicity.
- CSP implements load reductions
- If CSP aggregate zonal performance is >75% (at least a “C+”) then CSP can schedule and direct the retest, otherwise CSP may have PJM retest if PJM is notified by 10/31.
- Retest scenarios (Optional but only need to test registrations where performance <100%)
  - CSP may schedule as many retest as desired to improve score and eliminate penalty
  - CSP may request PJM to do a retest. PJM provides CSP day ahead notification by 10am that a test will occur. PJM provides same test day notification.

If CSP can not pass the test then the resource would likely not have performed during an actual event.





# PJM Proposal 1a – Use Cases

Zone	Test Month	Season	MW	Event	Test Status	Test Result	Retest Scheduler*	Retest 1 with test result	Retest 2 with test result	Retest 3 with test result	Final test Performance	Penalty Volume (%)	Penalty Volume (MW)
Meted	7	summer	35	8/20/2019	Tested but subsequent event	no test needed							0
Peco	8	summer	25			78%	CSP	83%	95%	90%	95%	5%	1.25
PPL	9	summer	35			85%	CSP	102%			102%	0%	0
Dom	10	summer	50			0%	PJM	99%			99%	1%	0.5
JCPL	9	summer	40			74%	PJM	105%			105%	0%	0
AEP	11	winter	60			103%	no retest needed				103%	0%	0
DPL	12	winter	40	8/20/2019	No test, prior event	no test needed							0
DEOK	1	winter	35			101%	no retest needed				101%	0%	0
Comed	2	winter	50			85%	CSP	92%	104%		104%	0%	0
<b>Total</b>			<b>370</b>									<b>Penalty</b>	<b>1.75</b>
												<b>Committed MW</b>	<b>370</b>
* If Test Result is <= 75% there is only 1 retest scheduled by PJM upon request by CSP											<b>Penalty/Committed MW</b>	<b>0.47%</b>	
Zonal test results are based on aggregate performance for all customers in the zone.													

- CSP 1 and CSP 2 proposal does not address the following identified interests:
  - “Testing reflective of LM product availability requirements”
    - Too many months removed from test cycle
  - “Testing results consistent with expected performance during LM events under various conditions (time of day, time of year, etc.)”
    - Too many opportunities for “do over” – there are no “do overs” during an event
  - “Test notification process aligns with actual event process (i.e.: Emergency messages prior to LM event day)”
    - Too much notification and CSP scheduling which enables test to be choreographed (eliminates the element of surprise)
    - CSP does not schedule actual events
- IMM proposal and identified interest:
  - “Avoid unnecessary testing”
    - Amount of testing compared to potential gain in accuracy.