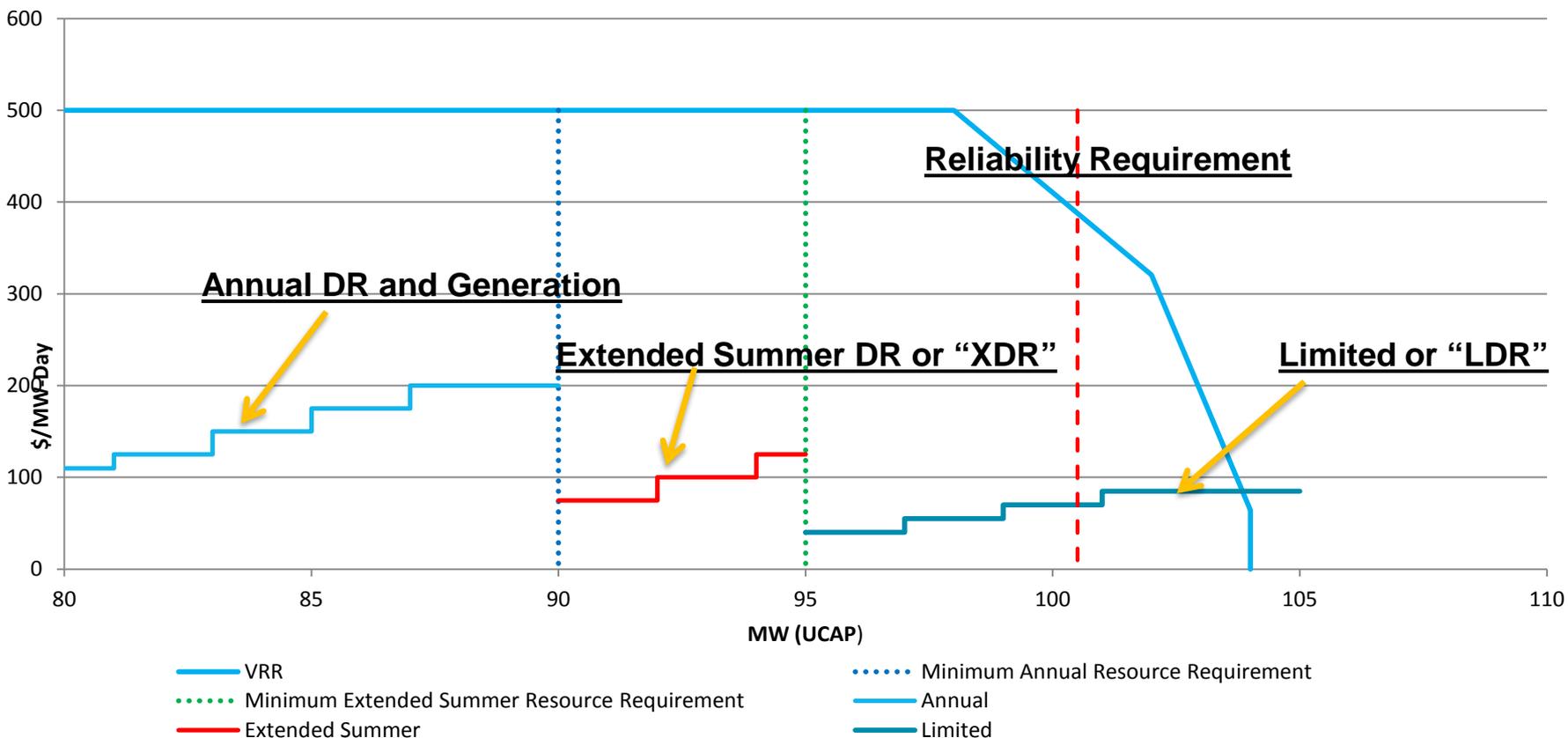




PJM Capacity Senior Task Force
Clearing DR in RPM Auctions
October 9, 2013

RPM Clearing: Status Quo

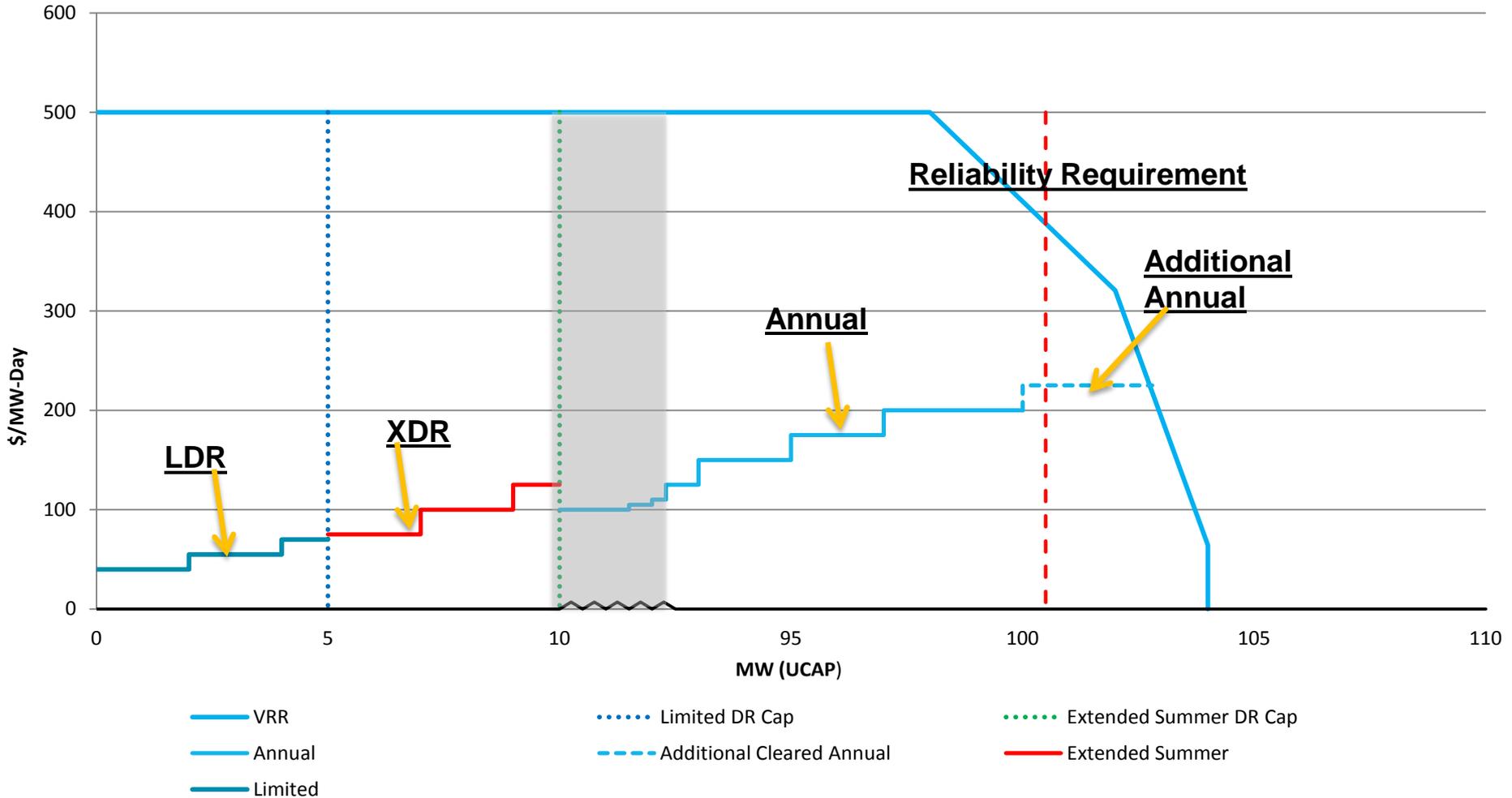
- Status Quo: clear all resources against VRR curve(s) in least-cost manner, subject to Minimum Annual and Minimum Extended Summer (i.e., XDR) Res. Requirements



RPM Clearing: PJM Proposal

- PJM Proposal: Least cost clearing of all product types against VRR curve(s) subject to max. limited DR (LDR) and max. XDR constraints.
- Impacts/Concerns:
 1. Large decrease LDR clearing, incr. XDR, overall net DR reduction of 2.2 GW in 15/16 and 1 GW in 16/17
 2. Increase in RPM clearing prices: ~ \$1.4 Billion net increase in load charges across RTO based on PJM's 10/4/13 simulation of 16/17 BRA
 3. Updated 10/9 PJM simulation revises this price impact
 4. Bidding behavior may change with only annual competition for MW quantity between Reliability Requirement and VRR intersection, perhaps making PJM simulation of BRA prices conservative

RPM Clearing: PJM Proposal



16/17 Simulation RTO Prices

2016/17 Planning Parameters	RTO
Reliability Requirement	161,974
Min Ext Summer Resource Requirement	158,512
Min Annual Resource Requirement	149,469
Max Limited DR Constraint	3,462
Max ES DR Constraint	12,505

Cleared Quantities	2016/17 BRA	PJM Proposal	CES Proposal
Cleared Annual MW	156,840	157,452	156,651
Cleared Ext Summer MW	2,470	7,831	2,103
Cleared Limited MW	9,850	3,462	3,221
Total Cleared MW	169,160	168,745	161,974
Total Cleared Annual + ES MW	159,310	165,283	158,754
Total Cleared Limited + ES MW	12,320	11,294	5,323
Clearing Prices			
RCP (Annual)	\$59.37	\$85.15	\$64.41
RCP (Extended Summer)	\$59.37	\$85.15	\$10.96
RCP (Limited)	\$59.37	\$16.44	\$10.96

Source: PJM, 10/4/13 CSTF

RPM Clearing: New Proposal

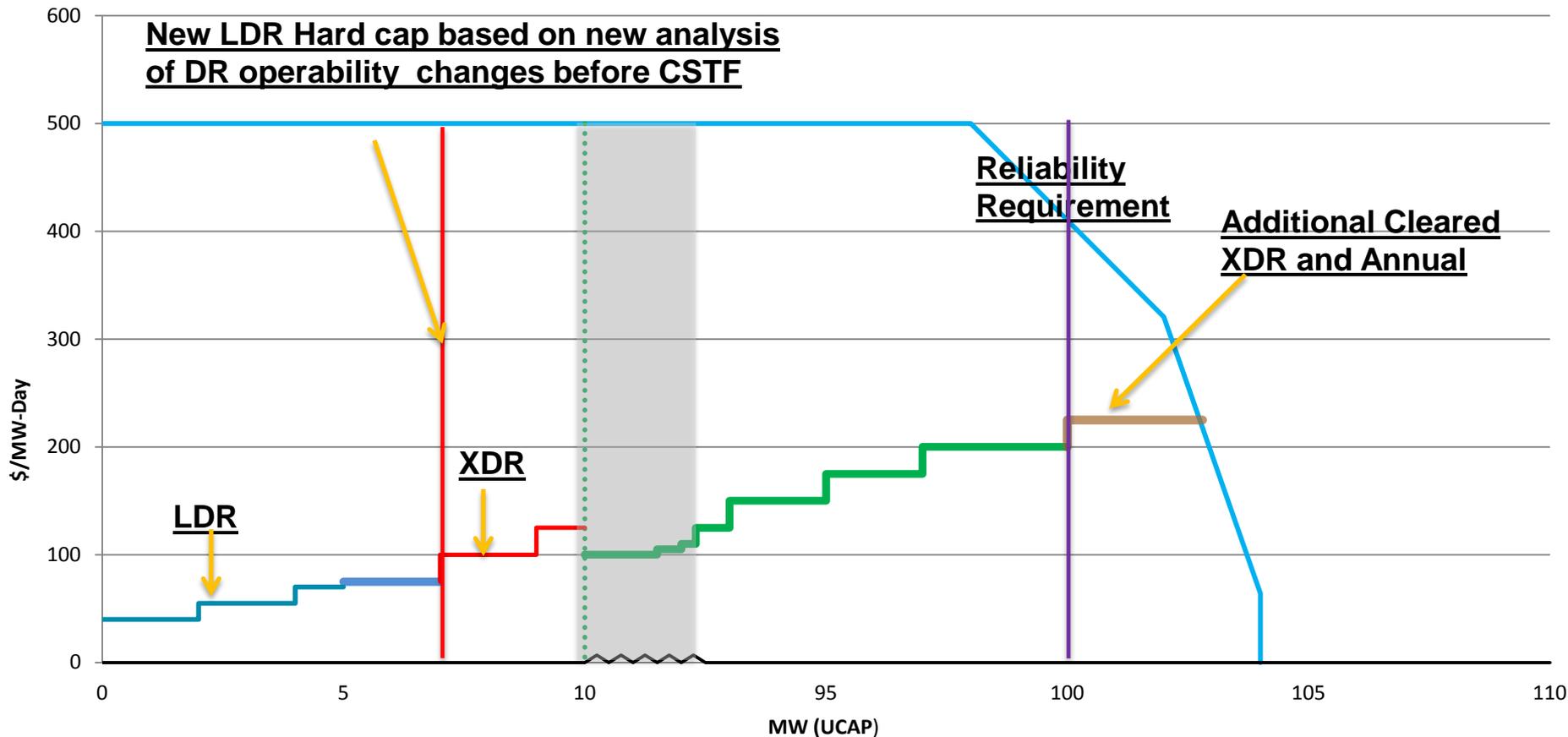
- Suggested Approach:
 - PJM’s DR saturation studies assume that PJM will implement all available DR at once and will not stagger DR dispatch
 - However: CSTF is now in the midst of providing PJM the ability to “stretch” the dispatch windows of DR resources, from a homogenous 2 hour block today to differentiated 120/60/30 minute blocks, allowing for greater versatility (staggering) of DR dispatch (vs. today) and lengthening the dispatch window
 - Additionally, we are discussing more granular DR dispatch
 - This change in operability should increase DR MWs that can be assimilated; may also require new PJM analysis

Starting Point of changes

Step 1: PJM should evaluate whether the 4.8% RTO LDR cap should increase. Basis for re-evaluation is the fact that LDR has more utility to PJM under revised operability parameters (120/60/30 minute response, etc.) under contemporaneous consideration at this CSTF

Step 2: Recognize that given that the Target Reliability Requirement is met, MW quantities beyond target and between Rel. Requirement and VRR intersection could be met with XDR resources in addition to annual resources, not just Annual resources as in PJM proposal

RPM Clearing: Proposal



— VRR
 - - - Extended Summer DR Cap
 — Annual
 — Additional Cleared Annual
 — Extended Summer
 — Limited

Source: Author

Additional Cleared XDR and Annual