

## 2016/17 Base Residual Auction

### DR Reliability Target Results

As per Manual 20, DR Targets were computed for the Limited DR and Extended Summer DR products prior to running the 2016/17 BRA.

The targets for both products were computed for the RTO and for the following LDAs: MAAC (PJMMA), EMAAC (EPJMMA), SWMAAC (SPJMMA), PEPCO, PSEG, PSEG-North, DPL-South, ATSI, and ATSI-Cleveland.

For the Limited DR Product, three tests were run. The smallest of the three targets is the one used in the BRA.

Test 1 - Load History Method: Average of differences between unrestricted peak hourly load and seventh highest unrestricted hourly load on days that meet the following criteria: annual peak load day and/or a day with an unrestricted peak load greater than the 50/50 weather normalized peak and/or a day on which RTO-wide load management was implemented.

Test 2 – Need for DR on 7<sup>th</sup> hour: Since the Limited DR product is a six hour product, this test varies the quantity of DR until there is a 10% probability of needing DR on a seventh hour. For the LDAs, the test includes the full CETL as capacity.

Test 3 – Need for DR an 11<sup>th</sup> time: Since the Limited DR product is limited to 10 calls, this test varies the quantity of DR until there is a 10% probability of needing DR an eleventh time. For the LDAs, the test includes the full CETL as capacity.

For the Extended Summer DR product, one test was run. The result from this test is used in the BRA

Test 4 – 10% Increase in LOLE base-case risk: In this test, the amount of Extended Summer DR is varied until the LOLE risk of the base-case (case with 0 MW of DR) is increased by 10%. For the LDAs, the test includes the full CETL as capacity. Note that the result of this test is used as the Minimum Annual Resource Requirement.

A more detailed description of the test procedures is available in Section 5 of PJM Manual 20.

Below are the results of the above tests for the RTO and the relevant LDAs.

<b>Limited DR Target</b>			
<b>LDA</b>	<b>Test 1 : Load History Method</b>	<b>Test 2: 10% chance of needing DR on 7th hour</b>	<b>Test 3: 10% chance of needing DR an 11th time</b>
<b>PJMRTO</b>	5.00%	4.80%	7.90%
<b>PJMMA</b>	6.20%	5.70%	15.59%
<b>EPJMMA</b>	6.40%	13.30%	24.78%
<b>SPJMMA</b>	7.00%	>15.50%	31.89%
<b>PEPCO</b>	6.40%	>15.60%	70.63%
<b>PSEG</b>	7.30%	13.30%	23.25%
<b>PSEG North</b>	7.30%	>15.60%	36.65%
<b>DPL South</b>	5.70%	>15.60%	29.81%
<b>CLEV</b>	5.10%	>15.60%	41.84%
<b>ATSI</b>	5.10%	>15.70%	27.65%

Figure 1: Limited DR Target for RTO and LDAs resulting from Tests 1, 2, and 3. Applicable target is highlighted in blue

<b>Extended Summer DR Target</b>	
<b>LDA</b>	<b>Test 4: 10% increase on basecase risk</b>
<b>PJMRTO</b>	10.50%
<b>PJMMA</b>	12.08%
<b>EPJMMA</b>	17.76%
<b>SPJMMA</b>	16.05%
<b>PEPCO</b>	19.97%
<b>PSEG</b>	18.78%
<b>PSEG North</b>	18.67%
<b>DPL South</b>	14.02%
<b>CLEV</b>	26.08%
<b>ATSI</b>	15.65%

Figure 2: Extended Summer DR Target for RTO and LDAs resulting from Test 4

The next figures show in more detail the above target calculations (from Tests 1, 2, 3, and 4) for the PJM RTO.

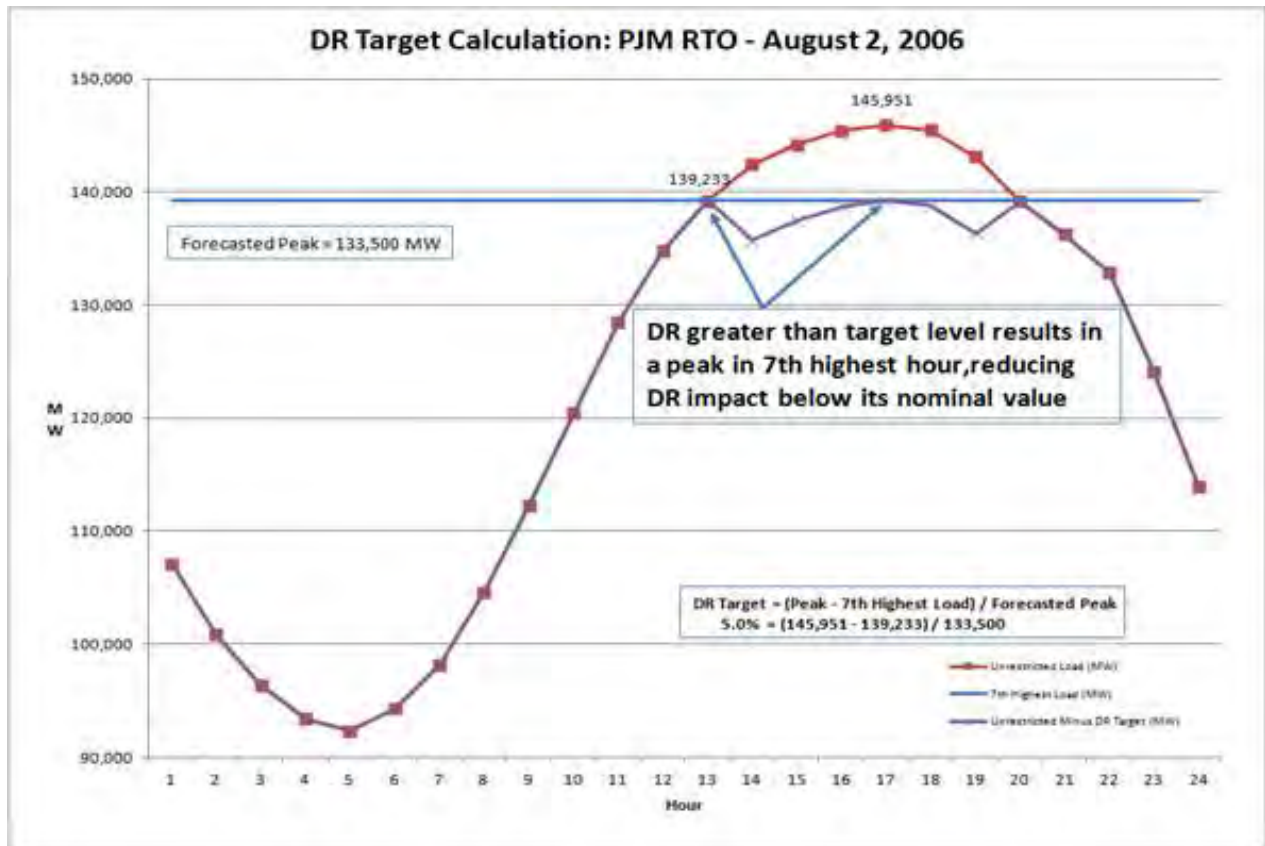


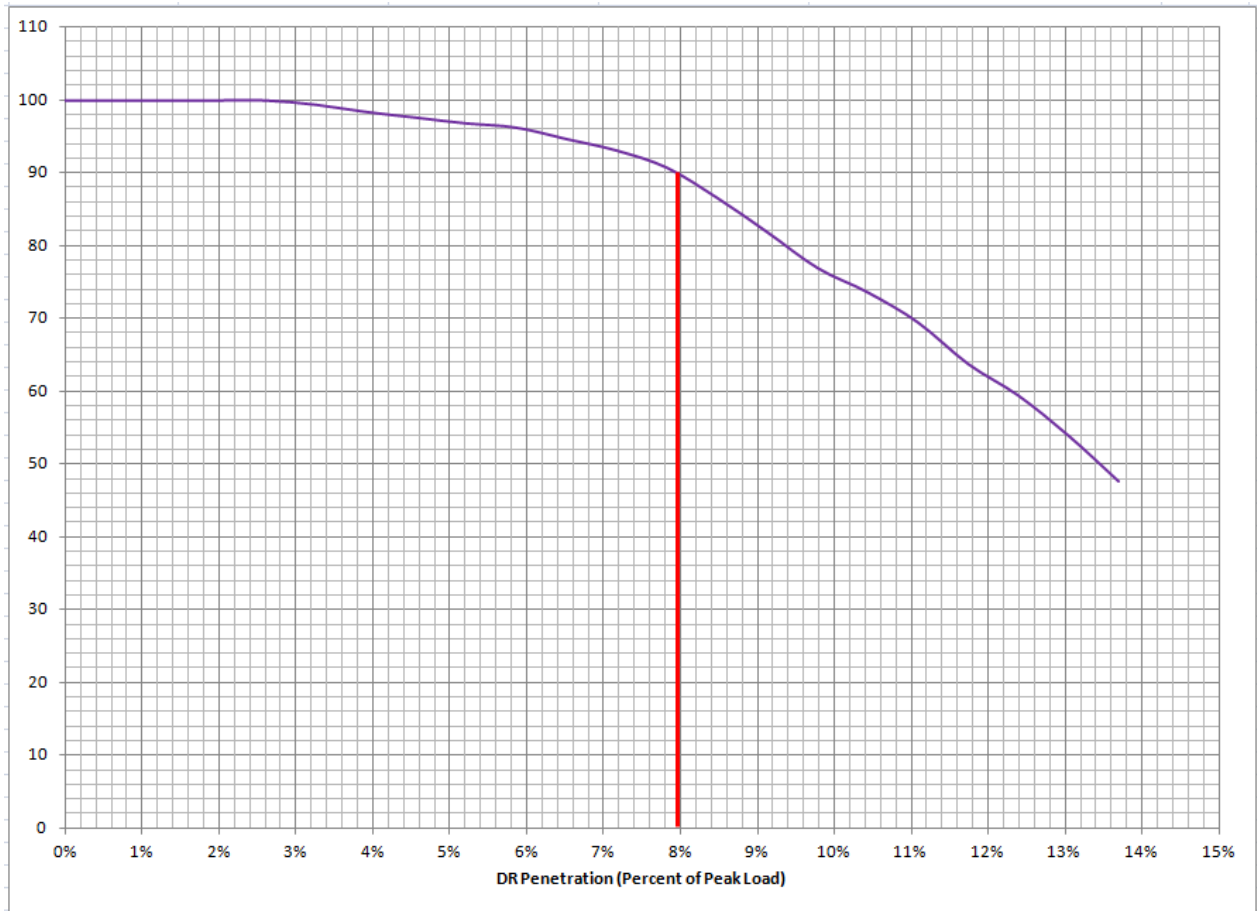
Figure 3: Example of Test 1 applied to August 2, 2006. Based on PJM footprint on 8/2/06.

<b>PJM RTO</b>				
<b>DR TARGET FOR SELECTED LOAD DAYS 2006-2012 (excluding 2008 &amp; 2009)</b>				
<u>Date</u>	<u>Annual Peak</u>	<u>Load Management</u>	<u>Above 50/50 WN</u>	<u>Cap for 6 Hour Duration</u>
7/17/2006			Y	4.3%
7/31/2006			Y	4.4%
8/1/2006			Y	5.0%
8/2/2006	Y		Y	4.8%
8/3/2006			Y	4.0%
8/8/2007	Y		Y	5.0%
7/6/2010			Y	5.3%
7/7/2010	Y		Y	5.8%
7/23/2010			Y	5.5%
7/20/2011			Y	4.6%
7/21/2011	Y		Y	4.3%
7/22/2011			Y	5.0%
7/6/2012			Y	4.4%
7/17/2012	Y		Y	4.3%
7/18/2012			Y	7.8%
<b>Average (2006 - 2011)</b>				<b>5.0%</b>

Figure 4: Test 1, PJMRTO. Days used in Test 1

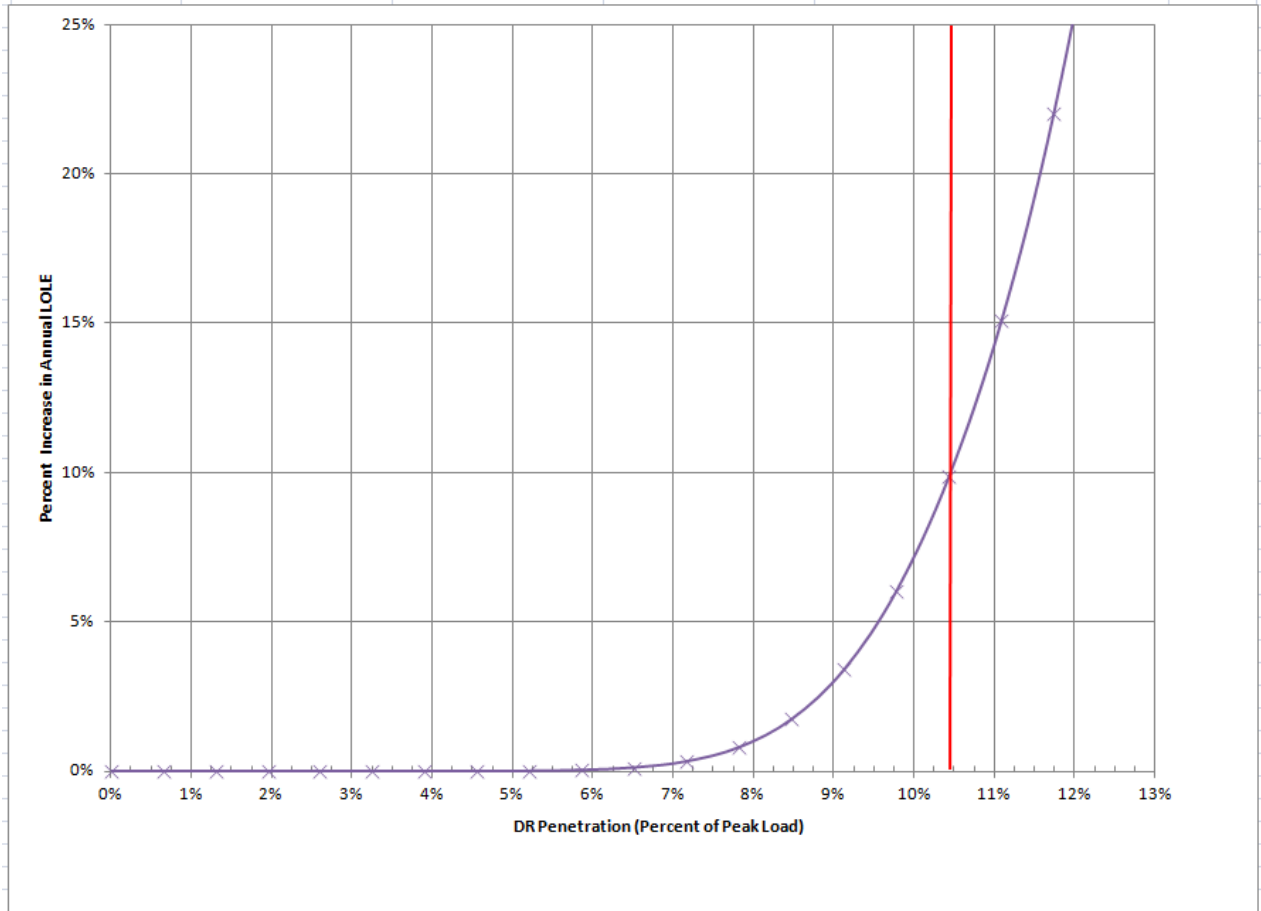
DR as % of peak	Prob. more than 6 hours
4.20%	0.08
4.50%	0.09
<b>4.80%</b>	<b>0.10</b>
5.10%	0.11

Figure 5: Test 2, PJMRTO. Amount of Limited DR as % of peak and resulting probability of needing DR more than 6 hours



**Figure 6: Test 3, PJMRT0. Amount of Limited DR vs Probability of Needing DR 10 times or less.**

**Red line denotes target.**



**Figure 7: Test 4, PJMRTO. Amount of Extended Summer DR vs Percent Increase in Annual LOLE.**

**Red line denotes target.**