PJM Emergency DR
Summer 2013
(Estimated)

September 30, 2013
July 15, 16 and 18, 2013
PJM estimated Demand Response

- Following charts depict:
  - All economically scheduled demand response across PJM for all dates.
  - All emergency demand response (known as “load management” or “DR”) capacity resources called by PJM to reduce load that had not already reduced economically.
  - July 15 and July 16 – Long Lead Emergency (DR) resources dispatched in ATSI Zone for total DR of 690 MW each day.*
  - July 18 – Long Lead Emergency (DR) resources dispatched in ATSI, PECO, PPL, and AEP Canton sub-zone for total DR of 1695 MW.*

- Actual reductions achieved will be known after all individual customer meter data is provided for compliance and settlements – deadline for compliance data submission is 45 days after the end of the month of the event and the submission deadline emergency energy settlements is 60 days following event.

*See following link for specific deployment time for each zone and lead time:
http://www.pjm.com/planning/resource-adequacy-planning/~/media/planning/res-adeq/load-forecast/alm-history.ashx
Estimated Demand Response in PJM: July 15, 2013

Notes:
Registered Emergency DR Amounts adjusted for RPM Commitments (do not represent actual energy reductions).
LMPs included to represent energy market conditions on the operating day and not a relationship between dispatched DR and prices. Actual load reductions are not finalized until up to 3 months after event.
Estimated Demand Response in PJM: July 16, 2013

Notes:
Registered Emergency DR Amounts adjusted for RPM Commitments (do not represent actual energy reductions).
LMPs included to represent energy market conditions on the operating day and not a relationship between dispatched DR and prices. Actual load reductions are not finalized until up to 3 months after event.
Estimated Demand Response in PJM: July 18, 2013

Notes:
Registered Emergency DR Amounts adjusted for RPM Commitments (do not represent actual energy reductions).
LMPs included to represent energy market conditions on the operating day and not a relationship between dispatched DR and prices. Actual load reductions are not finalized until up to 3 months after event.
ATSI Zone Instantaneous Load July 15, 2013

- Emergency DR Event Period
- 13:50 - ATSI Zone Long Lead Notified
- 15:50 - ATSI Zone Long Lead Activated
- 18:22 - ATSI Zone Long Lead Released
ATSI Zone Instantaneous Load July 16, 2013

Emergence DR Event Period

11:30 - ATSI Zone Long Lead Notified
13:30 - ATSI Zone Long Lead Activated
16:30 - ATSI Zone Long Lead Released
ATSI Zone Instantaneous Load July 18, 2013

Emergency DR Event Period

- 12:40 - ATSI Zone Long Lead Notified
- 14:40 - ATSI Zone Long Lead Activated
- 18:00 - ATSI Zone Long Lead Released
PECO Zone Instantaneous Load July 18, 2013

Emergency DR Event Period

- 12:40 - PECO Zone Long Lead Notified
- 14:40 - PECO Zone Long Lead Activated
- 17:00 - PECO Zone Long Lead Released

MW
9,000
8,000
7,000
6,000
5,000

00:00 04:00 08:00 12:00 16:00 20:00 00:00
07/18/2013 07/18/2013 07/18/2013 07/18/2013 07/18/2013 07/18/2013 07/19/2013
<table>
<thead>
<tr>
<th>Emergency DR Event Days by Zone dispatched</th>
<th>Committed Capacity MW</th>
<th>Capacity Reduction MW</th>
<th>Performance (Reduction / Committed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/15/13, ATSI</td>
<td>690</td>
<td>658</td>
<td>95%</td>
</tr>
<tr>
<td>7/16/13, ATSI</td>
<td>690</td>
<td>627</td>
<td>91%</td>
</tr>
<tr>
<td>7/18/13, All zones dispatched (ATSI, PECO, PPL)</td>
<td>1,695</td>
<td>1,524</td>
<td>90%</td>
</tr>
<tr>
<td>7/18/13, ATSI</td>
<td>690</td>
<td>600</td>
<td>87%</td>
</tr>
<tr>
<td>7/18/13, PECO</td>
<td>426</td>
<td>361</td>
<td>85%</td>
</tr>
<tr>
<td>7/18/13, PPL</td>
<td>579</td>
<td>564</td>
<td>97%</td>
</tr>
<tr>
<td>7/18/13, AEP_CANTON</td>
<td>na</td>
<td>na</td>
<td>na</td>
</tr>
</tbody>
</table>

1) Results are preliminary and PJM is in process of doing final validation with specific members. Numbers are not expected to significantly change.
2) AEP_CANTON subzone numbers are not applicable since subzone compliance is considered voluntary.
September 10-11, 2013
PJM estimated Demand Response

• Following charts depict:

  – All economically scheduled demand response across PJM for all dates.

  – All emergency demand response (known as “load management” or “DR”) capacity resources called by PJM to reduce load that had not already reduced economically.

  – September 10th – Long Lead Emergency (DR) resources dispatched in ATSI Zone and AEP Canton sub-zone for total DR of 706 MW.*

  – September 11th – Long Lead Emergency (DR) resources dispatched in AEP, ATSI, DOM, DUQ, and all Mid-Atlantic Zones, and Short Lead resources in all Mid-Atlantic Zones for total DR of 5961 MW.*

• Actual reductions achieved will be known after all individual customer meter data is provided for compliance and settlements – deadline for compliance data submission is 45 days after the end of the month of the event and the submission deadline emergency energy settlements is 60 days following event.

*See following link for specific deployment time for each zone and lead time:
http://www.pjm.com/planning/resource-adequacy-planning/~/media/planning/res-adeq/load-forecast/alm-history.ashx
Estimated Demand Response in PJM: September 10, 2013

- Emergency DR
- Economic DR
- PJM Eastern Hub LMP
- PJM RTO LMP

Notes:
Registered Emergency DR Amounts adjusted for RPM Commitments (do not represent actual energy reductions).
LMPs included to represent energy market conditions on the operating day and not a relationship between dispatched DR and prices.
Emergency DR estimate adjusted by expected reductions for the period after the mandatory compliance period (Hours 21 and 22).
Actual load reductions are not finalized until up to 3 months after event.
Estimated Demand Response in PJM: September 11, 2013

Notes:
Registered Emergency DR Amounts adjusted for RPM Commitments (do not represent actual energy reductions).
LMPs included to represent energy market conditions on the operating day and not a relationship between dispatched DR and prices. Actual load reductions are not finalized until up to 3 months after event.
ATSI Zone Instantaneous Load September 10, 2013

Emergency DR Event Period

13:50 - ATSI Zone Long Lead Notified
15:50 - ATSI Zone Long Lead Activated
21:30 - ATSI Zone Long Lead Released
Mid-Atlantic Instantaneous Load September 11, 2013

MW

Emergency DR Event Period

13:00 - All Zones Short and Long Lead Notified
14:00 - All Zones Short Lead Activated
15:00 - All Zones Long Lead Activated

Releases:
17:00 - AECO, JCPL, PSEG, RECO Long Lead
17:15 - All Zones Short Lead
17:30 - PECO, PPL, METED Long Lead
18:00 - BGE, DPL, PEPCO Long Lead
18:30 - PENELEC Long Lead

00:00 04:00 08:00 12:00 16:00 20:00 00:00
29,500 31,500 33,500 35,500 37,500 39,500 41,500 43,500 45,500 47,500 49,500 51,500 53,500