Addressing Uplift in the RTEP

Paul McGlynn
PJM Planning Committee
August 13, 2015

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Background

- At their meeting in March, the Markets and Reliability Committee directed the Planning Committee to "develop rules to require that uplift formally be treated as an input to the Regional Transmission Expansion Plan.

- Uplift = Make Whole Payment = Operating Reserves
  - This is the quantity of money paid to supply resources in order to ensure they recover their cleared offer price.
    - A resource's operating cost may not be fully covered by the market clearing price (LMP in this case) for a number of reasons
  - Uplift ensures that the resource is incentivized to follow PJM's instructions by ensuring that when it does it at least recovers its cleared offer price

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Background – Last Month

- Reviewed historical examples / categories of uplift
  - Day-ahead and Balancing
    - Make whole payment for generation needed to serve load or manage a constraint (e.g. cycle on/off limits or min run times for a generator
  - Blackstart and Synchronous Condensing
    - Relatively small make whole payments (e.g. running a unit to satisfy a black-start requirement)
  - Reactive Services
    - Units called on specifically to address high or low voltage
- The reactive services “bucket” is most directly impacted by RTEP solutions

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"Uplift" Buckets

	2013 Charges (Millions)						2014 Charges (Millions)					
	Day-Ahead	Balancing	Reactive Services	Synchronous Condensing	Black Start	Total	Day-Ahead	Balancing	Reactive Services	Synchronous Condensing	Black Start Services	Total
Jan	$11.1	$79.3	$23.6	$0.0	$8.5	$122.4	$35.8	$565.7	$3.8	$0.1	$4.0	$609.4
Feb	$5.1	$67.1	$17.6	$0.0	$7.0	$96.9	$9.5	$56.1	$1.0	$0.0	$0.9	$67.5
Mar	$6.7	$17.4	$14.4	$0.0	$6.8	$45.2	$5.7	$59.5	$2.7	$0.0	$2.6	$70.5
Apr	$5.7	$23.4	$13.7	$0.0	$9.2	$52.1	$4.2	$9.7	$5.3	$0.0	$2.8	$22.0
May	$12.5	$22.5	$17.2	$0.0	$8.7	$60.9	$6.4	$21.0	$5.3	$0.0	$1.8	$34.5
Jun	$10.1	$17.9	$22.1	$0.0	$8.0	$58.0	$5.3	$15.9	$4.2	$0.0	$2.1	$27.4
Jul	$8.3	$43.5	$19.6	$0.4	$5.9	$77.7	$6.7	$11.5	$2.9	$0.0	$4.4	$25.5
Aug	$4.2	$14.7	$27.8	$0.0	$7.6	$54.2	$5.8	$9.9	$1.0	$0.0	$4.1	$20.8
Sep	$12.0	$31.1	$27.5	$0.0	$7.4	$78.1	$8.0	$12.5	$1.3	$0.0	$3.9	$25.6
Oct	$2.5	$12.8	$41.7	$0.0	$6.7	$63.7	$9.5	$9.8	$0.8	$0.0	$2.6	$22.8
Nov	$2.8	$17.7	$42.7	$0.0	$6.7	$69.9	$5.6	$10.1	$0.5	$0.0	$1.4	$17.6
Dec	$5.3	$36.2	$43.5	$0.0	$4.4	$89.3	$9.0	$9.1	$0.6	$0.0	$2.3	$21.1
Total	$86.3	$383.6	$311.4	$0.4	$86.7	$868.4	$111.4	$790.8	$29.4	$0.1	$33.0	$964.7
Share	9.9%	44.2%	35.9%	0.0%	10.0%	100.0%	11.5%	82.0%	3.1%	0.0%	3.4%	100.0%

- Our focus will be on uplift associated with Reactive Services

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- Evaluation of Operational Performance issues in the RTEP is required under the Operating Agreement and is further defined in Section 2.7 of M14B
  - Typical areas of interest include TLRs, PCLLRW, 500/230 kV PRA and min-gen high voltages
  - Metrics used include 1000 hours or 100 instances of TLR level 3 or higher on an annual basis, and avoided risk for PRA
  - PCLLRWs are evaluated following peak season and compared with planned RTEP upgrades and need for additional upgrades is evaluated
- **Recommend adding language to Section 2.7 of M14B to specifically address uplift**

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M14B – Section 2.7.1 – Operational Performance Metrics

For uplift payments, PJM will annually review the historical uplift payments and the system condition or driver for the payment. PJM will assess the impact of planned RTEP upgrades on the drivers for the uplift and the need for additional planned upgrades will be evaluated. The evaluation of the need for additional upgrades will consider the frequency and amount of the uplift payment as well as any outage or short term system conditions that may have caused the uplift.

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Next Steps

- Finalize M14B changes
- Continue to develop light load procedures (i.e. generator reactive dispatches) that are consistent with conditions observed in real-time operation
- Investigate ways to address limitations with existing production cost simulations

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