Sub-zonal dispatch proposed for ‘11/’12 Delivery Year

DRS (Demand Response Subcommittee)
5/13/2011
• Current market rules allow zonal, lead time and sub-zonal dispatch:
  – Key limitation based on use of ALL CALL technology
• Significant changes to system topology for ‘11/’12
  – ATSI integration
  – TRAIL line implementation
• Successful implementation sub-zonal dispatch through State by Zone implementation in summer 2010.
Governning Documents

• OATT
  – Market Operations
  – Attachment DD
  – Attachment DD-1

• OA
• RAA
• M13
• M18
• M10
• Sub zones defined in advance to enable CSP to easily dispatch their customers.
• Transparency of rules from Dispatch to Settlements (clear communication for customer expectations)
• Flexibility to manage the system based on unpredictable conditions
System Constraints

- Known major constraints that divide a zone (based on scarcity pricing definitions/analysis):
  - AP South: APS|East
  - East: Meted|East, PPL|East
  - Central: PN|East
  - West: PN|East
  - 5004/5005: PN|East

- Pending TRAIL implementation and redefinition of APSouth may create more subzones (or change existing):
  - Dom
  - PE

- Unknown constraints for more localized transmission constraints
  - Very difficult to predict
  - May be focused on major load center/metropolitan areas
Sub-zonal dispatch by:

- State/DC by zone combination
- zone by zip code defined sub zone
- LDA nested within zone

CSP must have accurate zip code on location in eLRS – this will be used to determined which registrations are dispatched.

See posted document for list of zip codes for zip code defined subzones.

If new sub zonal dispatch needed during the DY, PJM will publish list of zip codes 3 days in advance on a best efforts basis of anticipated need.

- Publish list on pjm.com and ensure designation used on ALL CALL (and included in Emergency messages) is mapped to list of zip codes.
- PJM will only request sub-zonal dispatch on sub-zone that has not been pre-defined within 3 days if needed to ensure system reliability.
- PJM will provide CSP with list of registrations required to respond upon request.

Aggregate registrations (more than one location) must respond with all locations if at least 1 location is in sub-zone

- Keep simple and avoid dispatching only some of the locations on a registration

Subzones are only dispatched when necessary – this should be a rare situation
Sub-zonal Dispatch (‘11/’12 procedure)

### Zones that are not expected to have subzones

- Any zone or subzone may be called by lead time.
- Zones that have sub-zones may be called at zone or sub-zone level.
  - Will not dispatch “Rest of” area.

### Zones that have predefined subzones

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• Sub-zonal dispatch communication same as zonal dispatch
  – ALL CALL (primary mechanism)
    • List of zip codes & subzone name will be published on pjm.com for zip code specific subzones
  – eDATA emergency messages
  – eLRS
    • Event message
    • Email (based on user preference)
• Number of events used to determine event multiplier based on number of events the registration has been dispatched
  – PEPCO DC dispatched twice
  – PEPCO zone dispatched once
  – 33% for PEPCO DC registrations (since they were actually dispatched 3 times) and 50% for non DC PEPCO resources (since they were actually only dispatched once and need to take min of 50% or 1/# events)

• Sub-zonal commitment based on registrations that were dispatched:
  – ILR = nominated capacity of registrations dispatched
  – DR = DR commitment * (nominated value of DR registrations dispatched/Total nominated value of DR registrations in zone).
  – CSP may not use other zonal registrations to substitute sub-zonal registrations that are dispatched.
  – Registrations dispatched based information submitted by CSP for location in eLRS.
    • PJM will use zip codes in eLRS just prior to event to determine exactly which registrations are required to respond.
• If registrations not dispatched then still required to perform annual test.
  – For example in 2010:
    • APS (WV, VA and MD) dispatched and therefore not required to Test
    • APS (PA) NOT dispatched and therefore required to Test
      – If test already conducted it is not necessary for CSP to submit the results.

• Sub-zonal commitment based on registrations that were NOT dispatched:
  – ILR = nominated capacity of registrations NOT dispatched
  – DR = DR commitment * (nominated value of DR registrations NOT dispatched/Total nominated value of DR registrations in zone).
  – CSP may not use other zonal registrations that were dispatched to substitute registrations that are required to test.
PJM will make necessary information available to CSPs to fully understand determination of any penalties:

- Event multipliers
- Sub-zonal commitment (this is based on simple proration previously described)
- Determine if feasible to get report included into MSRS
• Dominion Zone
  – Tornado activity in eastern portion
  – DOM|NC Load Management (87 MW) not enough to mitigate
  – Decision
    • Dispatch entire Dominion zone 1,006 MW
      – OR
    • Dispatch East portion with problem for 243 MW

• Issue was resolved and it did not require Emergency conditions and therefore did not require Load Management.
  – Incremental emergency energy cost to system if entire zone was dispatched ~$4.5mm.
Proposal

• Pros
  – Complies with obligations under the tariff (clarification in M-13 may still be necessary)
  – Provide transparency on how subzones will be dispatched (zip code basis and not Pnode)
  – Complete process that leverages existing infrastructure
  – Allows flexibility when necessary for unexpected conditions
  – Always dispatch entire registration to keep simple for CSP.
  – Up-front transparency based on known sub-zones
  – 3 day notification period for new subzones on best effort basis
  – PJM to provide registration list upon request.
  – PJM to make compliance penalty reporting available to improve transparency when sub zonal dispatch occurs

• Cons
  – All possible subzones are not pre-defined and CSP responsible for compliance
  – PJM may dispatch entire zone when subzone could have alleviated the issue (LSE cost issue)
  – CSP dispatch infrastructure may need short term investment to make operational
• Maintain existing flexibility and require every zip code to be a predefined subzone
  – Administrative challenges for CSPs
  – Scope – transitioning into longer term discussion that needs more discussion.

• Rule on no new subzones during Delivery Year
  – May jeopardize system reliability.
  – Timing - requires tariff change and do not have time to implement for ‘11/’12. This is really not a short term option.
  – Cost – PJM may be required to dispatch entire zone when only small area will help reliability issue.