Demand Side Ancillary Services Program

Price Response Load Working Group

Market Issues Working Group

June 19, 2007

Agenda

- Introduction
- Modeling
  - *Bidding & Scheduling*
- Metering
- Settlement
- Load Forecast
- Coordination with other Programs
- Reliability Standards
- Next Steps

Introduction

- Include demand response (DR) in the ancillary service markets and the real-time management of the grid
- Program is not price response load
- Program is paying load to provide reserve and/or regulation, and creating an obligation to adjust consumption, as determined by economics of bid
- DSASP will be paid for scheduled reserve and regulation, but not for energy

Modeling

- DSASP resource modeled throughout the NYISO systems as a pumped storage/generator facility able to operate in negative and positive MW range. Dispatch range to be determined by the bid.

Modeling (cont)

- Bidding Characteristics:
  - Reserve: [0 : X] – Energy
    [X] - Reserve
  - Regulation: [-X : X] – Energy
    [2X] - Reserve
    [X] - Regulation
  - Both: [-X : Y] - Energy
    [Y + X] - Reserve
    [X] - Regulation

  - *Energy bid required for entire MW range*
  - *Minimum run time and minimum down time will not be valid for units operating at 0MW schedule*
  - *Follow same rules as generators for submittal of reserve bids:*
    - MW values determined by ramp rates
    - Availability bids allowed in Day-Ahead. Must bid $0 in RT.

Modeling (cont)

- Scheduling Outcomes:
  - *Only available as ancillary service provider in Day-Ahead market*
  - *Available for ancillary service and energy in Real-Time Market*
  - *RTC, RTD, and AGC will dispatch DSASP suppliers like a generator*
  - *Desire to limit ramp down response rates after energy conversion.*

Metering Requirements

- Continuous computer-to-computer data transmission
  - *Maintain operational visibility*
  - *Monitor and validate performance*
- Meet Transmission Owner interconnection requirements
- DSASP supplier will
  - *Receive RTD (5 minute) and AGC (6 second) basepoints*
  - *Transmit response MW and total actual load consumption*
- Meter authority to submit generator response MW-hr
- LSE submit TOL files for actual load consumption (capturing the effect of the load reduction)

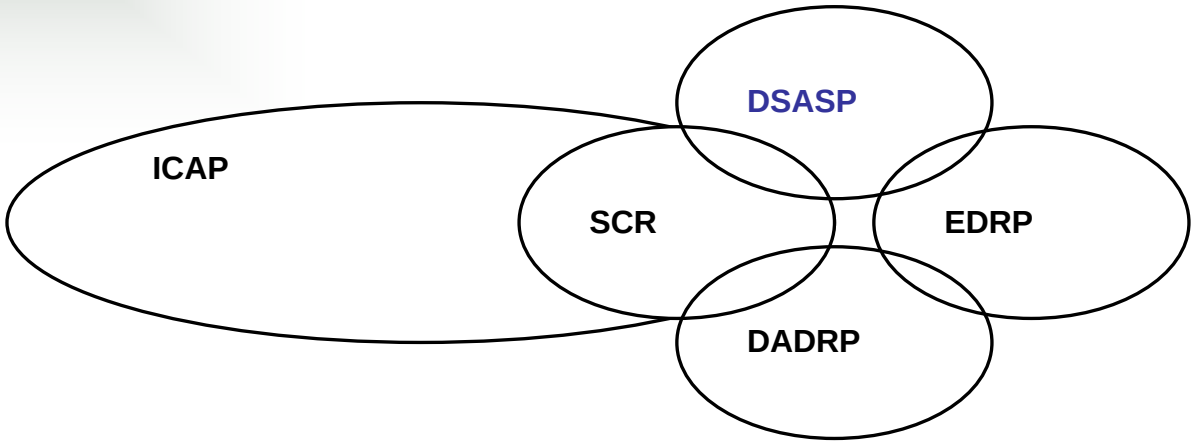
Settlement

- Paid clearing price for reserve and regulation scheduled
  - *Regulation performance measured per interval*
  - *Reserve performance measured for intervals converted to energy. Average performance of day applied to entire days settlement.*
  - *Reserve costs allocated to LSE's via load ratio share*
- DSASP does not receive energy payment for reduced consumption
  - *Energy based settlements not applicable, including regulation adjustments (RRAC, RRAP) and BPCG*
  - *LSE settled at reduced load (actual) level*
- DAMAP (Reserve/Regulation) eligible
  - *Not eligible if self-derated*
- No Rate Schedule 1 supplier charges as basis is "actual energy injection/withdrawal"
- Not eligible for voltage support payment

Load Forecast Management

- Load forecast must reflect the unreduced load forecast to allow for accurate scheduling of all resources (DSASP, generation and transactions) in the forward horizon.
- Calculated Real-Time load will be adjusted to reflect demand response currently employed for purposes of forecasting.

Coordination with Other Program



- DADRP & DSASP programs are mutually exclusive
- DSASP may also participate in SCR/EDRP
  - *Must response to SCR/EDRP activations*
  - *No RT bids scheduled*
- For DA DSASP response scheduled, normal settlement provisions for energy conversion. MW's excluded from SCR settlement process.
  - *Additional MW's are settled per SCR program*

Reliability Standards

- NPCC and NYSRC maintain reliability rules defining who can participate in the various reserve markets.
  - *NPCC A-06 has been updated and submitted to association membership for approval*
    - Interruptible load eligible for synchronous reserve
    - Behind the fence generation eligible for non-synchronous reserve
  - *NYSRC Reliability Rules exclude load participation from synchronous reserve markets*
    - Reviewing material to determine scope of necessary changes to align the rules with NPCC

Reliability Standards (cont)

- NYISO Manuals
  - *Control Center Requirements*
  - *Revenue Metering Requirements*
  - *Ancillary Services*
  - *Direct Generator Communication*

Next Steps

- Resolve outstanding questions
- Identify necessary tariff revisions
- Present program to BIC/OC
- Update manuals and seek approvals
- Establish Credit obligations
- Establish DSASP registration procedure
- Identify and implement software modifications
- Support TO/DSASP metering implementation
- Technical training