Report of the Virtual Bidding Task Force

Management Committee Meeting
July 12, 2001

Virtual Bidding

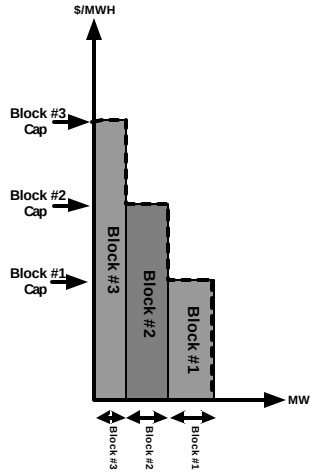
- **Virtual Load**
  - *Day-Ahead purchase of energy by a non-LSE*
  - *Day-Ahead energy purchase is sold back in Real-Time*
  - *Actual energy consumed = 0*
- **Virtual Supply**
  - *Day-Ahead sale of energy by a non-Generator*
  - *Day-Ahead energy sale is bought back in Teal-Time*
  - *Actual energy supplied = 0*

Load Bid

- **Applies to both Physical & Virtual load**
- **Either zonal price-capped...**
  - *Up to 3 blocks each with a ceiling price*
- **...Or a zonal "fixed" block**
  - *No ceiling price*
  - *Usage is restricted*
- **Bus-Specific Price-Capped load will be converted to Zonal Price-Capped load**
  - *Does not apply to Price Responsive Load*

Price-Capped Load Bid

Block #1 amount	A positive number specifying the amount of energy (MWH) to be purchased during the hour if the zonal market clearing price is equal to or below the value set in Block #1 cap. This parameter is described on the current bid forms as "Price Cap #1 MW."
Block #1 cap	The maximum price ($/MWH) to be paid for the energy in the first block. The energy block will be purchased if the zonal LBMP is less than or equal to the price cap value. Otherwise the first block of energy will not be purchased. This parameter is described on the current bid forms as "Price Cap #1 $/MW."
Block #2 amount	A positive number specifying an additional amount of energy (MWH) to be purchased during the hour if the zonal market clearing price is equal to or below the value set in Block #2 cap. This parameter is described on the current bid forms as "Price Cap #2 MW." The parameter need be entered only if the bid contains two or more blocks at different prices.
Block #2 cap	The maximum price ($/MWH) to be paid for the energy in the second block. The energy block will be purchased if the zonal LBMP is less than or equal to the price cap value. Otherwise the second block of energy will not be purchased. When used, the Block 2 price cap must be greater than the Block 1 price cap. This parameter is described on the current bid forms as "Price Cap #2 $/MW."
Block #3 amount	A positive number specifying an additional amount of energy (MWH) to be purchased during the hour if the zonal market clearing price is equal to or below the value set in Block #3 cap. This parameter is described on the current bid forms as "Price Cap #3 MW." The parameter need be entered only if the bid contains three blocks at different prices.
Block #3 cap	The maximum price ($/MWH) to be paid for the energy in the third block. The purchase of the energy block will be made if zonal LBMP is less than or equal to the price cap. Otherwise the purchase will not be made. When used, the Block 3 price cap must be greater than the Block 2 price cap. This parameter is described on the current bid forms as "Price Cap #3 $/MW."

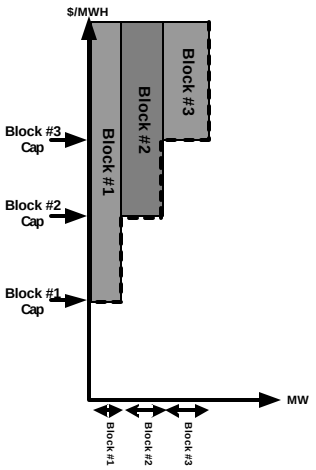


Virtual Supply

- **Similar to load bid but will use positive values for MW sold**
- **New bid form is required**
- **Characteristics**
  - *Zonal distribution*
  - *Block bid, each with a floor price*
  - *No start-up or minimum generation costs*
  - *No minimum run time*
  - *Cannot supply ancillary services*
  - *Is not considered in forecast (reliability) pass*

Virtual Supply Bid

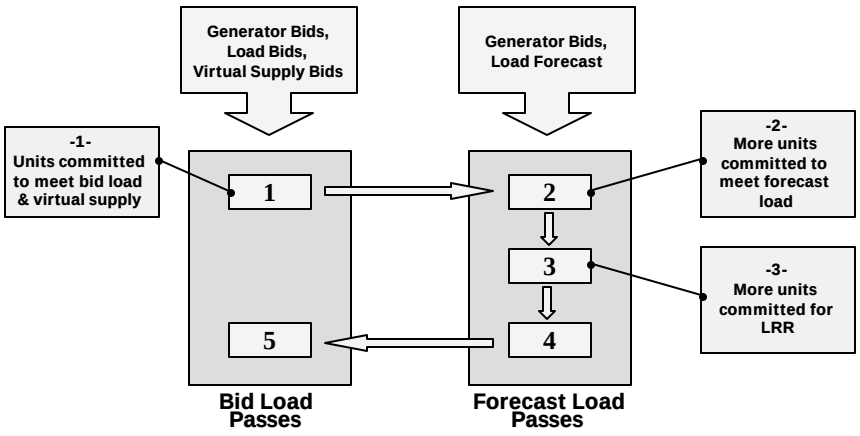
Block #1 amount	A positive number specifying the amount of energy (MWH) to be sold during the hour if the zonal market clearing price is equal to or above the value set in Block #1 cap.
Block #1 cap	The minimum price ($/MWH) that will be accepted for the energy in the first block. The first energy block will be available for sale if the zonal LBMP is greater than the price cap. If the price equals the price cap, it is available for sale but might not all be scheduled. Otherwise the energy block will not be sold.
Block #2 amount	A positive number specifying an additional amount of energy (MWH) available for sale during the hour if the zonal market clearing price is equal to or above the value set in Block #2 cap. The parameter need be entered only if the bid contains two or more blocks at different prices.
Block #2 cap	The minimum price ($/MWH) that will be accepted for the energy in the second block. The second energy block will be available for sale if the zonal LBMP is greater than or equal to the price cap. Otherwise the energy block will not be sold. When used, the Block #2 price cap must be greater than the Block #1 price cap.
Block #3 amount	A positive number specifying an additional amount of energy (MWH) available for sale during the hour if the zonal market clearing price is equal to or above the value set in Block #3 cap. The parameter need be entered only if the bid contains three blocks at different prices.
Block #3 cap	The minimum price ($/MWH) that will be accepted for the energy in the third block. The sale of the energy block will be made if zonal LBMP is greater than or equal to the price cap. Otherwise the sale will not be made. When used, the Block #3 price cap must be greater than the Block #2 price cap.



Uplift Allocation

- **This presentation gives an overview**
  - *DA commitment of generating units*
  - *Concept of "incremental uplift"*
  - *Allocation of "incremental uplift" to bidders*
  - *An example*
- **Detailed formulations are in the Concept of Operation Document**

DA Commitment of Units with SCUC



DA Commitment

- **Some generating units are committed to meet accepted load bids less accepted virtual supply bids**
- **Some generating units are committed to secure the system using the ISO's best estimate of the next day's load**
- **Some generating units are committed for local reliability**

Incremental Uplift

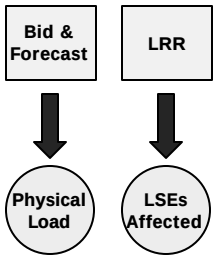
- **<u>Incremental uplift</u> -- uplift associated with additional resources committed to secure the system for forecast load.**
  - *Underbidding by load or virtual supply bidding in the DA market (SCUC pass 1) results in additional resources being committed (SCUC pass 2)*
  - *Over forecast of load results in additional resources being committed*

DA Uplift Allocation

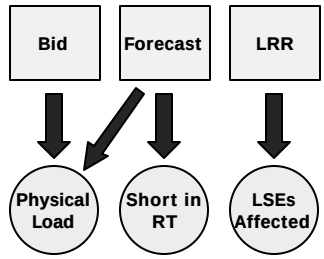
A portion of uplift on units committed to secure the system for forecast load will be allocated to bidding entities that are "short" in Real-Time.

- **physical loads that consume more in RT than purchased DA**
- **virtual supply**

Existing Allocation

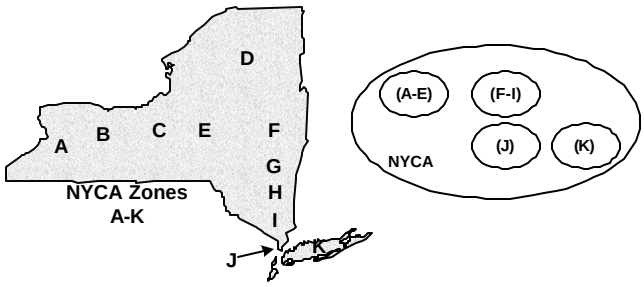


Proposed Allocation



Deficiencies by Locations

(a.k.a. Super-Zones)

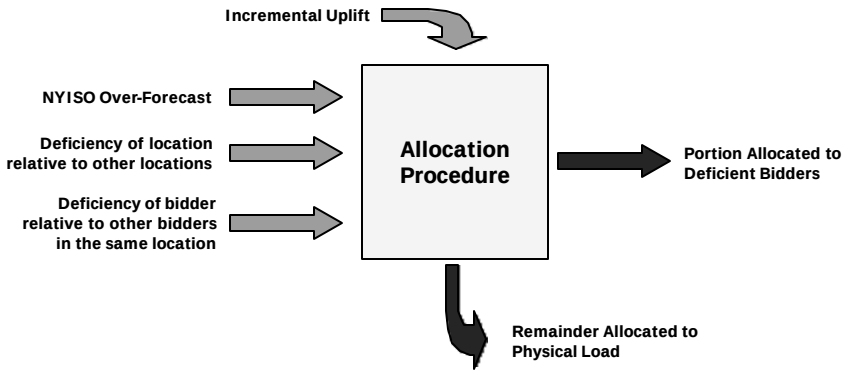


A LONG position in one location will not offset a SHORT position in another location

Locations

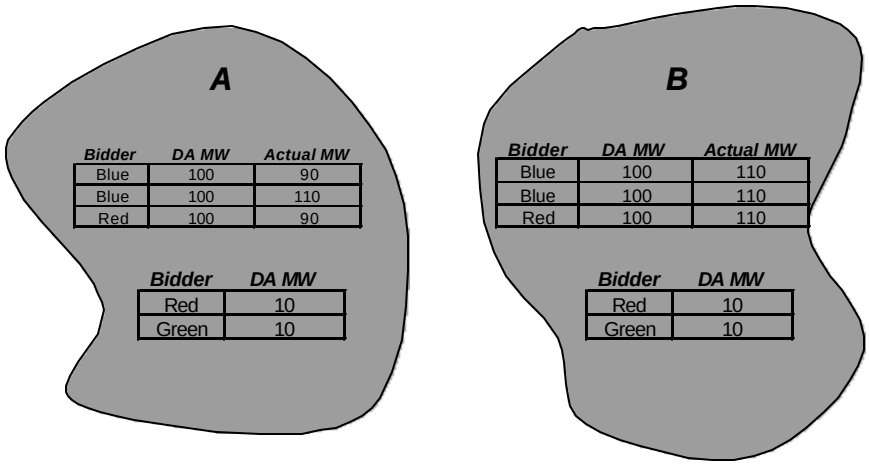
- Chosen to reflect major bottlenecks in NY
- Each location contains one or more LBMP zones
- An LBMP zone may not be split between two or more locations
- Number or composition of locations may be changed by the ISO with reasonable advanced notice to market participants

Allocation Procedure



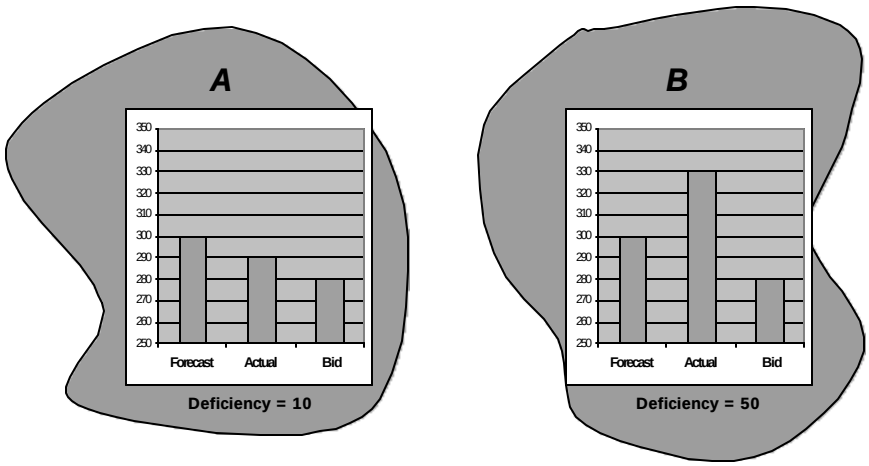
Example

Two Locations (A & B)
Three bidders (Blue, Red & Green)

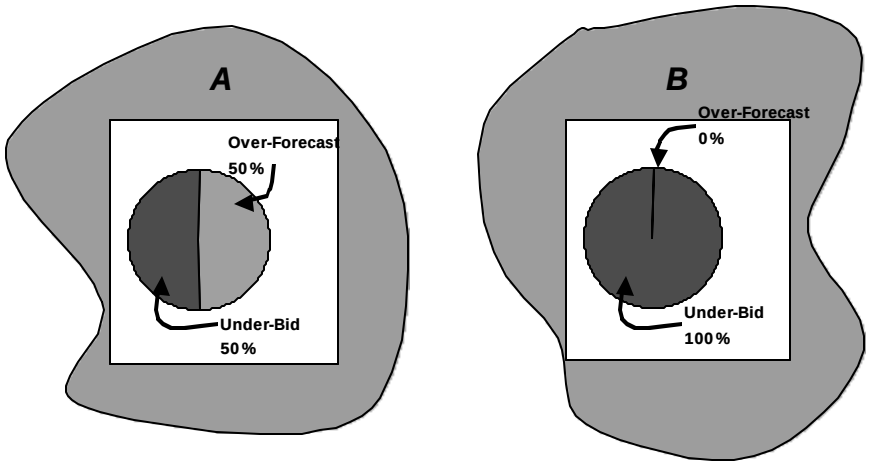


Deficiency of Location

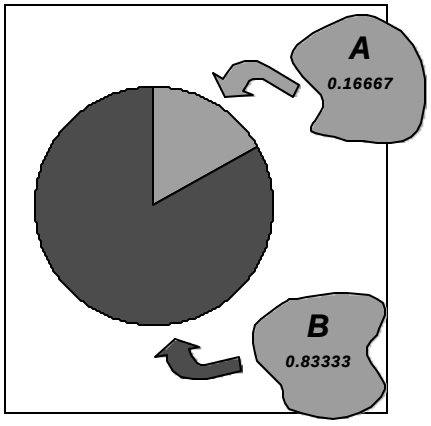
(Actual + DA Sale - DA Purchase)



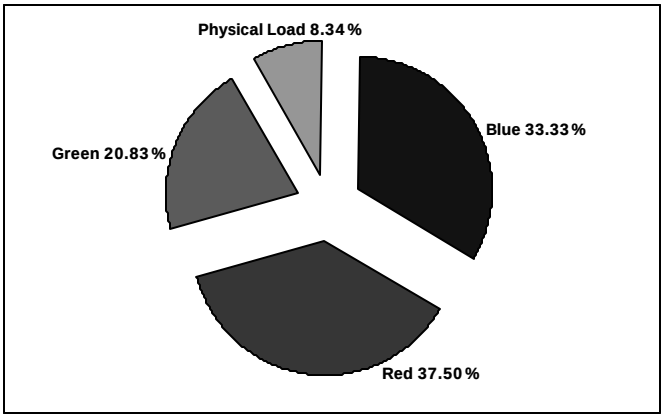
Fraction in each location due to Over-Forecast & Under-Bid



Relative Deficiency of Locations A & B



Incremental Uplift Allocation



Ancillary Service Costs

- **Maintain current cost allocation scheme**
  - *Cost of ancillary service is allocated to physical loads by load-weighted share*
  - *Amount of ancillary service is independent of bidding*
  - *VB may impact which resources are selected for ancillary service and impact price, but*
  - *Price-capped load bid provides an avenue of relief*
  - *New features (2-settlement system) best considered an issue separate from VB*

Initial Schedule Idea

- **Definition & Requirements**
- **Virtual Load**
- **Virtual Supply**
- **Other market improvements**

Planned Schedule

- **Definition & Requirements**
- **Virtual Bidding (Load & Supply)**
- **Other market improvements**

Market Monitoring

- **Have investigated many bidding scenarios and are continuing to investigate others**
- **Price-capped load bidding provides protection against potential abuse of VB**
- **Existing MM plan provides the means to deal with abuse. No additional authority appears to be required**

Market Monitoring

- **Combination of VB & TCC Rents:**
  - *MMPU is implementing new tools to monitor the impact of any bid on TCC rents.*
  - *Manipulation of TC rents is difficult because VB is only allowed on a zonal basis*
- **MMPU will update market participants prior to VB deployment with results of their continuing efforts.**
- **Special reporting or monitoring activities required to support their functions are in the process of being defined.**

Creditworthiness

- Credit policies & procedures are being examined by ISO staff & a Credit Procedures Task Force under BS&P.
- VB credit implications are included.
- Credit requirements are a function of exposure and the depth of ones pockets rather than how the exposure is incurred.

Initial Limits on VB Volume?

- Design of VB specifically does not limit participants, limits are not required
- Previous attempts to design a “limited” VB function was very complicated.
- No apparent need (or benefit) identified.
- Not included in the plan and will definitely impact schedule.
- Not recommended by ISO staff.