ATTACHMENT D

DATA REQUIREMENTS FOR LBMP BIDDERS

Attachment D
Table D-1
Data Requirements for Internal Generators

Data Item	Cat.	Bid Parameters	Variability	Comments
Company Name	G	--	Static Required	Parent Organization.
Generator Name/No.	G	--	Static Required	
Generator Unit Code/ID	G	--	Static Required	Unique code which identifies the Generator to the ISO.
Bus	G	Bus No.	Static Required	Specific location of Generator within the NYCA.
Submitted By	G	Name	May vary Required	Organization submitting Bid. Multiple organization can be authorized to submit Bids with the ISO accepting the most recent. A single organization must be specified to receive invoices from the ISO.
DMNC (Summer & Winter)	P/G	MW	Static Required	Dependable Maximum Net Capability. Confirmed by test for Generator's with Installed Capacity contracts, or historical production data.
Power Factor	P/G	MW/MVA	Static Optional	Generator's tested Power Factor for producing Reactive Power (MVArs) at normal high operating limit MW output level. ~~Provided~~, provided it is at least 90% of DMNC. This is required for Generators receiving Voltage Support Payments.
Installed Capacity Contracts	G	MW	May vary Required	Installed Capacity contracts in effect with LSEs within the NYCA. The ISO may limit maximum and/or minimum amounts of Installed Capacity by location due to reliability Constraints.
Normal Upper Operating Limit	C/D	MW	May change Required by hour for Day-Ahead	Maximum output of a Generator ~~.~~ that could be expected in any hour of the following operating day. The ISO must be informed of a limit change that results in less Capability.
Emergency Upper Operating Limit	C/D	MW	May change Required by hour for Day-Ahead	Maximum output that a Generator's owner expects it can reach during extraordinary conditions. A Generator's Emergency Upper Operating Limit may be no less than its Normal Upper Operating Limit.
Normal Response Rate (NRR)	P/C/D	MW/min.	May vary Required	To be provided as an expected response rate ~~for RTD~~. Generators may specify up to three NRRs. The minimum acceptable response rate is 1% of a Generator's gross output per minute.
Regulation Response Rate (RRR)	P/C/D	MW/Min.	Same as Optional NRR	To be provided as an expected response for Regulation Service. If RRR differs from NRR, the total expected response rate is restricted to the maximum of the two rates.
Emergency Response Rate (ERR)	P/C/D	MW/Min.	Same as NRR	To be provided as expected response for reserve pickups; A Generator's ERR must be greater than or equal to the capacity-weighted average of its NRRs.~~)~~ ~~Bidders must inform ISO of all changes to ERR.~~
Reactive Power Capability	P/G	Piecewise linear curve with MW as independent variable and +/- MVArs as dependent variable	Static Optional	Update as changed.
Physical Minimum Generation Limit	P/G	MW	Static Required	

Notes:
Internal Generators LBMP bidders are located within the NYCA.
Cat. = Data Categories: **G** = General; **P** = Pre-Qualification; **C** = Commitment; **B** = Balancing; **D** = Dispatch; **I** = Installed Capacity.
Static Data remains relatively constant over the lifetime of Bids but can be changed.
General Data may be provided electronically or by mail, but requires a confirmation or Pre-Qualification process by the ISO.
Some data will require substantiation by a test; actual data Bid may be subject to validation checking against Pre-Qualification data.
Optional = Required only when providing or bidding to provide the associated service.

December 18, 2000.

Attachment D

Table D-1a

Data Requirements for Demand Side Resources

Data Item	Cat.	Bid Parameters	Variability	Comments
Company Name	G	--	Static Required	Parent ~~Organization~~organization.
Generator Name/No.	G	--	Static Required	
Generator Unit Code/ID	G	--	Static Required	Unique code which identifies the Demand Side Resource to the ISO.
Bus	G	Bus No.	Static Required	Specific location of Demand Side Resource within the NYCA.
Submitted By	G	Name	May vary Required	Organization submitting Bid. Multiple organization can be authorized to submit Bids with the ISO accepting the most recent. A single organization must be specified to receive invoices from the ISO.
DMNC (Summer & Winter)	P/G	MW	Static Required	Specify maximum, megawatt Curtailment Bid.
Power Factor	P/G	MW/MVA	Static Optional	Values to be initialized pursuant to ISO requirements.
Installed Capacity Contracts	G	MW	May vary Required	Installed Capacity contracts in effect between Special Case Resources that are Demand Side Resources and LSEs within the NYCA. The ISO may limit maximum and/or minimum amounts of Installed Capacity by location due to reliability Constraints.
Normal Upper Operating Limit	C/D	MW	May vary Required by hour for Day-Ahead	Maximum output of a Demand Side Resource that could be expected in any hour of the followingoperating day. The ISO must be informed of a limit change that results in less Capability.
Emergency Upper Operating Limit	C/D	MW	May vary Required by hour for Day-Ahead	Maximum output that a Demand Side Resource expects to be able to reach during extraordinary conditions. A Demand Side Resource's Emergency Upper Operating Limit may be no lower than its Normal Upper Operating Limit.
Normal Response Rate (NRR)	P/C/D	MW/min.	May vary Required	To be provided as an expected response rate for RTD. Demand Side Resources may specify up to three NRRs. The minimum acceptable response rate is 1% of the quantity of Demand Reductions that the Demand Side Resource produces per minute.
Emergency Response Rate (ERR)	P/C/D	MW/Min.	Same as NRR	.To be provided as expected response for reserve pickups; A Demand Side Resource's ERR must be greater than or equal to the capacity-weighted average of its NRRs. ~~Bidders must inform ISO of all changes to ERR. (??)~~
Physical Minimum Demand Reduction Limit	P/G	MW	Static Required	

Notes:
Demand Side Resource LBMP bidders are located within the NYCA.
Cat. = Data Categories: **G** = General; **P** = Pre-Qualification; **C** = Commitment; **B** = Balancing; **D** = Dispatch; **I** = Installed Capacity.
Static Data remains relatively constant over the lifetime of Bids but can be changed.
General Data may be provided electronically or by mail, but requires a confirmation or Pre-Qualification process by the ISO.
Some data will require substantiation by a test; actual data Bid may be subject to validation checking against Pre-Qualification data.
Optional = Required only when providing or bidding to provide the associated service.

Attachment D
Table D-2
Data Requirements for External Generators

Data Item	Cat.	Bid Parameters	Variability	Comments
Company Name	G	--	Static Required	Parent Organization.
Generator Name/No.	G	--	Static Required	
Generator Unit Code/ID	G	--	Static Required	Unique code which identifies the Generator to the ISO.
Submitted By	G	Name	May vary Required	Organization submitting Bid. Multiple organizations can be authorized to submit Bids with the ISO accepting the most recent. A single organization must be specified to receive invoices from the ISO.
Dependable Maximum Net Capability	P/G	MW	Static Required	Confirmed by test for Generators with Installed Capacity contracts.
Installed Capacity Contracts	P/G	MW	Variable (not within a Bid) Optional	Installed Capacity contracts in effect with LSEs within the NYCA. The ISO may limit maximum and/or minimum amounts of Installed Capacity by location due to reliability Constraints.
Normal Upper Operating Limit	C/D	MW	May ~~change~~vary by hour for Day-Ahead Required	Maximum output of a Generator that could be expected in any hour of the following operating day. The ISO must be informed of a limit change that results in less Capability.
Emergency Upper Operating Limit	C/D	MW	May ~~change~~vary Required by hour for Day-Ahead	Maximum output that a Generator's owner expects it can reach during extraordinary conditions. A Generator's Emergency Upper Operating Limit may be no lower than its Normal Upper Operating Limit.
Physical Minimum Generation Limit	P/G	MW	Static Required	

Notes:

External Generators LBMP bidders are located outside the NYCA.

Cat. = Data Categories: **G** = General; **P** = Pre-Qualification; **C** = Commitment; **B** = Balancing; **D** = Dispatch; **I** = Installed Capacity.

Static Data remains relatively constant over the lifetime of Bids but can be changed.

General Data may be provided electronically or by mail, but requires a confirmation or Pre-Qualification process by the ISO.

Some data will require substantiation by a test; actual data Bid may be subject to validation checking against Pre-Qualification data.

Optional = Required only when providing or bidding to provide the associated service.

Attachment D
Table D-3
Data Requirements for Generator Commitment Bids

Data Item	Cat.	Bid Parameters	Variability	Comments
Startup Time	C/B	Hours: Minutes **or** Piecewise linear curve with Hours Off-Line as independent variable and Hours to Start as dependent variable	May be changed for any Day-Ahead or Real-Time Commitment Required	Length of time needed to startup an off-line Generator, synchronize it to the power grid and stabilize at minimum.
Startup Bid Price	C/B	~~$~~$$ to Start specified hourly ~~or a~~ **or** Piecewise linear curve with hours off-line as an independent variable and $ to Start as a dependent variable	May be changed hourly for any Day-Ahead Commitment. May only be lowered in the Real-Time Commitment in any hour in which the Generator has a Day-Ahead schedule. Required	
Minimum Run Time	C/B	Hours:Minutes	May be changed for any Day-Ahead Commitment but may not be changed once a Generator is online. May be changed in Real-Time if the Generator is not currently online. Required	Duration of time that a Generator must run once started before it can subsequently be decommitted. Minimum Run Time cannot be honored past the end of the Dispatch Day. The longest Minimum Run Time allowed in the Real-Time Market shall be one hour.
Minimum Down Time	C/B	Hours:Minutes	May be changed for any Day-Ahead or Real-Time Commitment Required	Duration of time that a Generator must remain off-line following decommission before it can be re-started. SCUC shall honor Minimum Down Time within a twenty four hour Dispatch Day. RTC will honor Minimum Down Times in the Real-Time Market unless the Generator has a Day-Ahead Schedule for any portion of the RTC optimization period.
Maximum Number of Startups per Day	C/B	No	Static Required	RTC will monitor but will not honor this parameter.

Notes:
Cat. = Data Categories: **G** = General; **P** = Pre-Qualification; **B** = Balancing; **D** = Dispatch; **I** = Installed Capacity.
Static Data remains relatively constant over the lifetime of bids but can be changed.

Attachment D
Table-D-3a

Data Requirements for Demand Side Resource Commitment Bids

Data Item	Cat.	Bid Parameters	Variability	Comments
Startup Time	C/B	Hours: Minutes	May be changed for any Day-Ahead or Real-Time Commitment Required	Length of time needed to respond to the ISO's signal to begin reducing demand.
Startup Bid Price	C/B	$$ to Start specified hourly	May be changed hourly for any Day-Ahead Commitment and, for any Real-Time Commitment in an hour in which the Demand Side Resource does not have a Day-Ahead schedule. Required	
Minimum Run Time	C/B	Hours:Minutes	May be changed for any Day-Ahead or Real-Time Commitment; may not be changed once Resource is on-line Required	Duration of time that the Demand Side Resource must reduce its demand once started before it can subsequently be decommitted. Minimum Run Time cannot be for more than 8 hours and cannot be honored past the end of the Dispatch Day. The longest Minimum Run Time allowed in the Real-Time Market shall be one hour.
Minimum Down Time	C/B	Hours:Minutes	May be changed for any Day-Ahead or Real-Time Commitment Required	Duration of time that the Demand Side Resource must remain off-line following decommission before it can be re-started. SCUC shall ~~honors~~honor Minimum Down Time within a twenty four hour Dispatch Day. RTC will honor Minimum Down Times in the Real-Time Market unless the Demand Side Resource has a Day-Ahead Schedule for any portion of RTC's optimization period.
Maximum Number of Startups per Day	C/B	No	Static (but may be changed in Real-Time Bids) Required	RTC will monitor but will not honor this parameter.

Notes:
Cat. = Data Categories: **G** = General; **P** = Pre-Qualification; **B** = Balancing; **D** = Dispatch; **I** = Installed Capacity.
Static Data remains relatively constant over the lifetime of bids but can be changed.

Attachment D
Table D-4
Data Requirements for Generator Energy Bids

Data Item	Cat.	Bid Parameters	Variability	Comments
Minimum Generation Energy Block and Bid Price	C/B	MW and $/hour	May vary by hour.	Must be provided for commitment. Gas turbine units that fully load on startup can use this form of bid in lieu of a Dispatchable Energy Bid, but will set LBMP when economic.
Dispatchable Energy Bids	C/B	~~:~~ No. of steps, $/MWh, and MWs of each step	May vary by hour.	Bids may consist of up to ~~twelve monotonically increasing~~ eleven constant cost incremental Energy steps. ~~in both SCUC and RTC~~ The cost of each step must exceed the cost of the preceding step.
~~Operating~~Bidding Mode	C/B	ISO-Committed Flexible, ISO-Committed Fixed, Self-Committed Flexible, or Self-Committed Fixed	May vary. ISO-Committed Flexible or Self-Committed Flexible Resources that are scheduled Day-Ahead may not be ISO-Committed Fixed in real-time unless a physical operating problem makes it impossible for them to be flexible.	~~Self~~ISO-Committed Fixed Generators are eligible to receive a Day-Ahead schedule on request.

Notes:
Cat. = Data Categories: **G** = General; **P** = Pre-Qualification; **C** = Commitment; **B** = Balancing; **D** = Dispatch; **I** = Installed Capacity.

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Attachment D
Table D-4a
Data Requirements for Demand Reduction Bids

Data Item	Cat.	Bid Parameters	Variability	Comments
Minimum Generation Energy Block and Bid Price	C/B	MW and $/hour	May vary by hour	Enter Demand Side ~~Resource~~Resources' ~~s~~ minimum reduction and Bid price. Must be provided for commitment.
Dispatchable Energy Bids	C/B	No. of steps, $/MWh, and MWs of each step ~~0~~	May vary by hour	Bids may consist of up to ~~twelve monotonically increasing (*i.e.*, possessing a positive slope at all points)~~ eleven constant cost incremental Energy steps ~~in both SCUC and RTC~~. The cost of each step must exceed the cost of the preceding step.
~~Dispatch~~Bidding ~~Status~~Mode	C/B	ISO -Committed Flexible	May vary by hour	All Demand Side Resources shall automatically be ISO-Committed Flexible.

Notes:
Cat. = Data Categories: **G** = General; **P** = Pre-Qualification; **C** = Commitment; **B** = Balancing; **D** = Dispatch; **I** = Installed Capacity.

Attachment D
Table D-5
Data Requirements for Generator Regulation Service Bids

Data Item	Cat.	Bid Parameters	Variability	Comments
Regulation Capacity Availability Bid	C/B	Table D-4 is required MW	May vary by hour ~~Optional~~Required	Generator must be able to respond to AGC Base Point Signals from the ISO. The Regulation Capacity Availability Bid along with the submitted Regulation Response Rate (from Table D-1) represent the maximum response range in MW and change Rate in MW/Min.
Regulation Capacity Price Bid	C/B	$/MW	May vary by hour ~~Optional~~Required	

Notes:
Cat. = Data Categories: **G** = General; **P** = Pre-Qualification; **C** = Commitment; **B** = Balancing; **D** = Dispatch; **I** = Installed Capacity.
Regulation Service Bids made for the Day-Ahead Market which are accepted are binding for the next 24 hour operating day.
Regulation Service not scheduled for use by the ISO may be marketed by the bidder providing no other terms or forward contracts are violated.
Unscheduled Regulation Service may be bid into the Real-Time Market, and may have a different Bid price than the Day-Ahead Bid.
Optional = Required only when providing or bidding to provide the associated service.

Attachment D
Table D-6
Data Requirements for Operating Reserve Bids

Data Item	Cat.	Bid Parameters	Variability	Comments
Spinning Reserve ~~y~~ Bid	C/B/D	Same as in Table D-4. Day-Ahead-only $/MW Availability Price Bid	Required Day-Ahead ~~and nay~~, may vary ~~by hour, in the Day-Ahead Market~~hourly. Real-Time Availability Bids will not be accepted. All Generators accepted to provide Energy will be treated as offering Reserves at a price of $0/MW.	MW Available is not separately Bid but is a function of the Bidder's ERR and UOL. If no Day-Ahead Availability price is bid, an Availability Bid of $0/MW will be assigned.
10-Minute Non-Synchronized Reserve Bid	C/B/D	Day-Ahead only $/MW Availability Price Bid	Required Day-Ahead ~~and nay~~, may vary ~~by hour, in the Day-Ahead Market~~hourly. Real-Time Availability Bids will not be accepted. All Generators accepted to provide Energy will be treated as offering Reserves at a price of $0/MW.	MW Available is not separately Bid but is a function of the Bidder's UOL. If no Day-Ahead Availability price is bid, an Availability Bid of $0 /MW will be assigned.
~~10-~~ 30 Minute Operating Reserve Spinning or Non-Synchronized ~~g~~ Reserve Bid	C/B/D	Day-Ahead only $/MW Availability Price Bid	Required Day-Ahead ~~and nay~~, may vary ~~by hour, in the Day-Ahead Market~~hourly. Real-Time Availability Bids will not be accepted. All Generators and Demand Side Resources accepted to provide Energy will be treated as offering Reserves at a price of $0/MW.	MW Available is not separately Bid but is a function of the Bidder's ERR if synchronized, and its UOL. If no Day-Ahead Availability price is bid, an Availability Bid of zero ~~$0~~ /MW will be assigned.
~~30 Minute Operating Reserve Spinning or Non-Synchronized~~	~~C/B/D~~	~~Day-Ahead only $/MW Availability Price Bid~~	~~Required Day-Ahead and nay vary by hour, in the Day-Ahead Market.~~	~~MW Available is not separately Bid but is a function of the Bidder's ERR~~ ~~If no Day-Ahead Availability price is bid, an Availability Bid of zero $/MW will be assigned.~~

			~~Real-Time Availability Bids will not be accepted. All Generators and Demand Side Resources accepted to provide Energy will be treated as offering Reserves at a price of $0/MW.~~	

Notes:
Cat. = Data Categories: **G** = General; **P** = Pre-Qualification; **C** = Commitment; **B** = Balancing; **D** = Dispatch; **I** = Installed Capacity.
Operating Reserve Bids made for the Day-Ahead Market which are accepted are binding for the next 24 hour operating day.
Operating Reserves not scheduled for use by the ISO may be marketed by the bidder providing no other terms or forward contracts are violated.
Optional = Required only when providing or bidding to provide the associated service.

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Issued on: January 16, 2001
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Attachment D
Table D-7
Data Requirements for Virtual Transaction Bids to Purchase Energy in the Day-Ahead Market

Data Item	Cat.	Bid Parameters	Variability	Comments
Company Name	G	--	Static	LSE, Energy Service Co. or other Transmission/Distribution Co. providing Load forecast.
Point of Withdrawal (Sink) Location	G	For Internal Loads: LBMP Zone or Zone and Bus **or** For External Loads: Control Area or Control Area and Proxy Bus	Static	
Submitted By	G	Name	May Vary	Organization submitting Bid.
Energy Forecast	C/B/D	MWh/hr	Variable by Hour	Total Estimate for Bid and non-Bid Load; ISO will rely on its own composite Load forecast as a reliability commitment to ensure that all Load is served. May be updated after DAM and/or Real Time to indicate adjusted Load served.
Energy Commit Bid	C/B/D	MW that will be committed for Day-Ahead Forward Contract	Variable by hour	Bidding is limited to the Day-Ahead Market.
Price Capped Energy Block Bids	C/B/D	No. of Blocks, MW/Block, and $/MW/Block	Variable by hour	Bidding is limited to the Day-Ahead Market.

Notes:
Cat. = Data Categories: **G** = General; **P** = Pre-Qualification; **C** = Commitment; **B** = Balancing; **D** = Dispatch; **I** = Installed Capacity.
Energy Bids made for the Day-Ahead Market which are accepted are binding for the next 24 hour operating day.

Attachment D
Table D-7.1
Data Requirements for Virtual Transaction Bids to Supply Energy

Data Item	Cat.	Bid Parameters	Variability	Comments
Company Name	G	--	Static	LSE, Energy Service Co. or other Transmission/Distribution Co. providing Load forecast.
Point of Injection (Source) Location	G	LBMP Zone	Static	
Submitted By	G	Name	May Vary	Organization submitting Bid.
Price Capped Energy Block Bids	C/B/D	No. of Blocks, MW/Block, and $/MW/Block	Variable by hour	Bidding is limited to the Day-Ahead Market.

Notes:
Cat. = Data Categories: **G** = General; **P** = Pre-Qualification; **C** = Commitment; **B** = Balancing; **D** = Dispatch; **I** = Installed Capacity.

Energy Bids made for the Day-Ahead Market which are accepted are binding for the next 24 hour operating day.

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Padding cell	

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