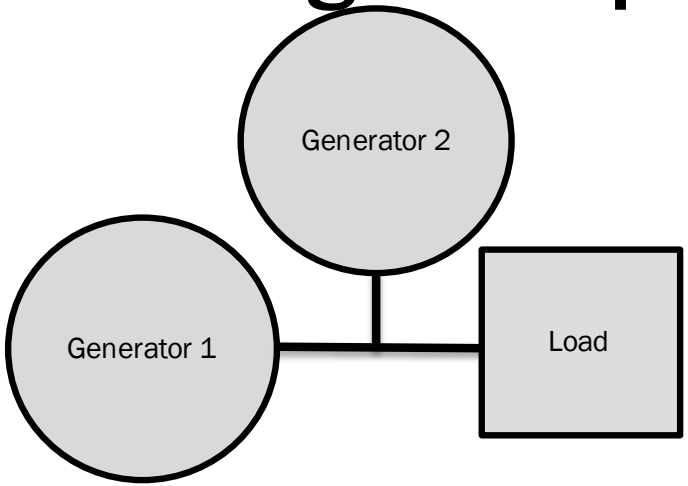
New York ISO
Independent System Operator

Reserve Pricing Examples

Consumer Interest Liaison

February 3, 2021

Pricing Example 1: Day Ahead



	Energy Bid ($/MWh)	Reserve Bid ($/MWh)	Upper Operating Limit (MW)
Generator 1	$20	$3	100
Generator 2	$30	$2	100

Load = 120 MW

Reserve Requirement = 50 MW

Total Production Cost *	Energy Price ($/MWh)	Reserve Price ($/MWh)

	Energy Schedule (MW)	Reserve Schedule (MW)
Generator 1		
Generator 2		

*Total Production Cost = Energy Bid*Energy Schedule + Reserve Bid*Reserve Schedule for both generators

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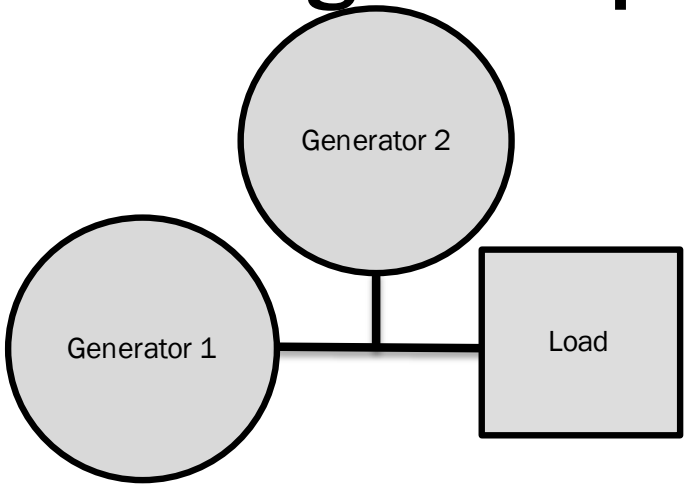
Pricing Example 1: Day Ahead



	Energy Bid ($/MWh)	Reserve Bid ($/MWh)	Upper Operating Limit (MW)
Generator 1	$20	$3	100
Generator 2	$30	$2	100

Load = 120 MW

Reserve Requirement = 50 MW

Total Production Cost*	Energy Price ($/MWh)	Reserve Price ($/MWh)
$2,700	$30	$2

	Energy Schedule (MW)	Reserve Schedule (MW)
Generator 1	100	0
Generator 2	20	50

*Total Production Cost = Energy Bid*Energy Schedule + Reserve Bid*Reserve Schedule for both generators

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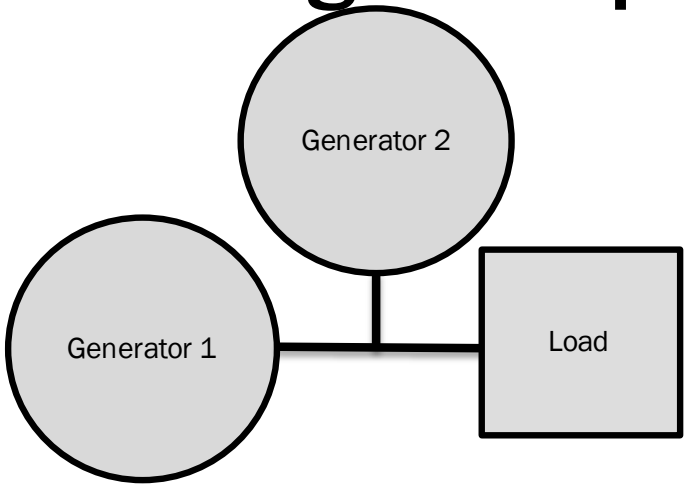
Pricing Example 2: Real Time



	Energy Bid ($/MWh)	Reserve Bid ($/MWh)	Upper Operating Limit (MW)
Generator 1	$20	$0	100
Generator 2	$30	$0	100

Load = 120 MW

Reserve Requirement = 50 MW

Total Production Cost*	Energy Price ($/MWh)	Reserve Price ($/MWh)

	Energy Schedule (MW)	Reserve Schedule (MW)
Generator 1		
Generator 2		

*Total Production Cost = Energy Bid*Energy Schedule + Reserve Bid*Reserve Schedule for both generators

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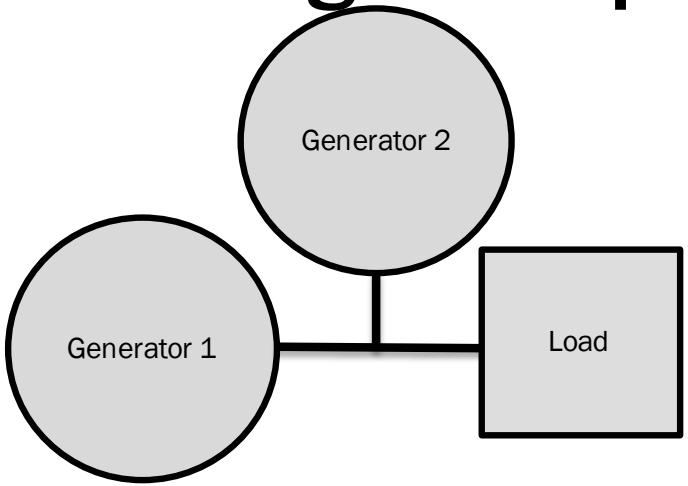
Pricing Example 2: Real Time



	Energy Bid ($/MWh)	Reserve Bid ($/MWh)	Upper Operating Limit (MW)
Generator 1	$20	$0	100
Generator 2	$30	$0	100

Load = 120 MW

Reserve Requirement = 50 MW

Total Production Cost*	Energy Price ($/MWh)	Reserve Price ($/MWh)
$2,600	$30	$0

	Energy Schedule (MW)	Reserve Schedule (MW)
Generator 1	100	0
Generator 2	20	50

*Total Production Cost = Energy Bid*Energy Schedule + Reserve Bid*Reserve Schedule for both generators

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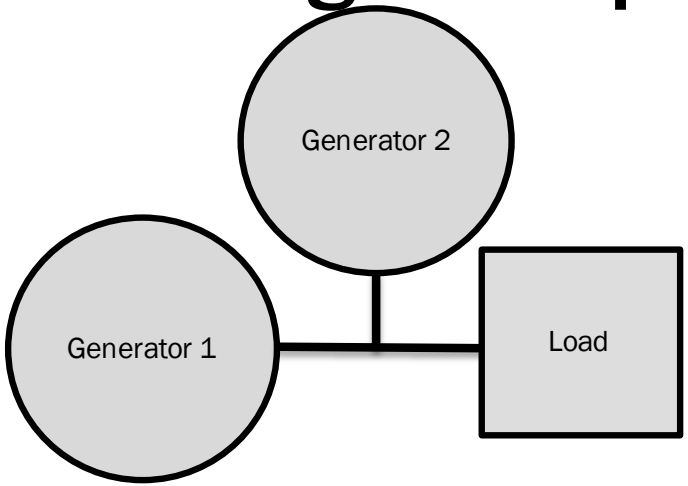
Pricing Example 3: RT with Constraints



	Energy Bid ($/MWh)	Reserve Bid ($/MWh)	UOL (MW)	Max Reserve Schedule (MW)*
Generator 1	$20	$0	100	50
Generator 2	$30	$0	100	40

*Based upon generator response rate

Load = 120 MW

Reserve Requirement = 50 MW

Total Production Cost*	Energy Price ($/MWh)	Reserve Price ($/MWh)

	Energy Schedule (MW)	Reserve Schedule (MW)
Generator 1		
Generator 2		

*Total Production Cost = Energy Bid*Energy Schedule + Reserve Bid*Reserve Schedule for both generators

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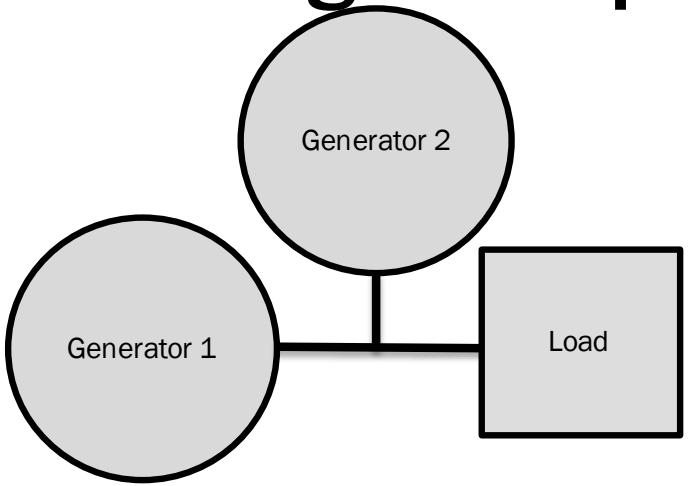
Pricing Example 3: RT with Constraints



	Energy Bid ($/MWh)	Reserve Bid ($/MWh)	UOL (MW)	Max Reserve Schedule (MW)*
Generator 1	$20	$0	100	50
Generator 2	$30	$0	100	40

*Based upon generator response rate

Load = 120 MW

Reserve Requirement = 50 MW

Total Production Cost*	Energy Price ($/MWh)	Reserve Price ($/MWh)
$2,700	$30	$10

	Energy Schedule (MW)	Reserve Schedule (MW)
Generator 1	90	10
Generator 2	30	40

*Total Production Cost = Energy Bid*Energy Schedule + Reserve Bid*Reserve Schedule for both generators

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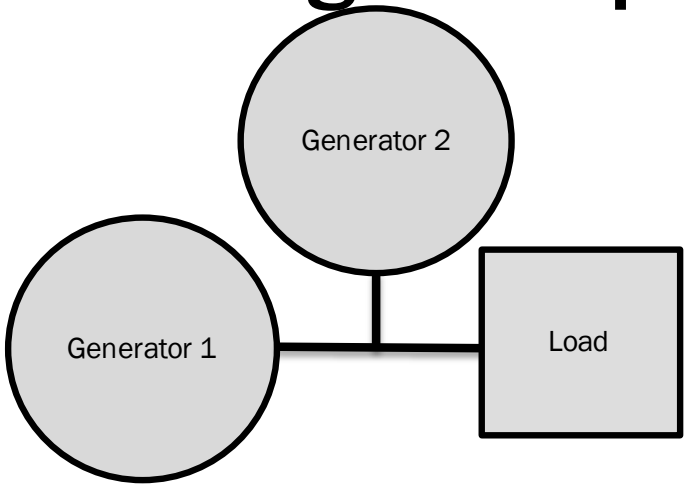
Pricing Example 4: RT with Constraints



	Energy Bid ($/MWh)	Reserve Bid ($/MWh)	UOL (MW)	Max Reserve Schedule (MW)*
Generator 1	$20	$0	100	50
Generator 2	$30	$0	100	40

*Based upon generator response rate

Load = 120 MW

Reserve Requirement = 51 MW

Total Production Cost*	Energy Price ($/MWh)	Reserve Price ($/MWh)

	Energy Schedule (MW)	Reserve Schedule (MW)
Generator 1		
Generator 2		

*Total Production Cost = Energy Bid*Energy Schedule + Reserve Bid*Reserve Schedule for both generators

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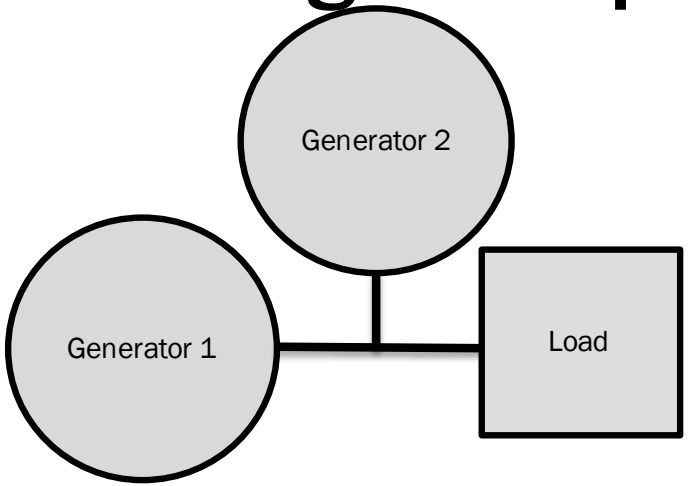
Pricing Example 4: RT with Constraints



	Energy Bid ($/MWh)	Reserve Bid ($/MWh)	UOL (MW)	Max Reserve Schedule (MW)*
Generator 1	$20	$0	100	50
Generator 2	$30	$0	100	40

*Based upon generator response rate

Load = 120 MW

Reserve Requirement = 51 MW

Total Production Cost*	Energy Price ($/MWh)	Reserve Price ($/MWh)
$2,710	$30	$10

	Energy Schedule (MW)	Reserve Schedule (MW)
Generator 1	89	11
Generator 2	31	40

*Total Production Cost = Energy Bid*Energy Schedule + Reserve Bid*Reserve Schedule for both generators

New York ISO

Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system

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Questions?