



Transmission Constraint Pricing

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NYISO Krey Corporate Center

Today's Discussion

- **Background**
- **Analysis**
- **NYISO Proposal**
- **Waiver Discussion**
- **Next Steps**
- **Questions**
- **Appendix – Additional Requested Analysis**

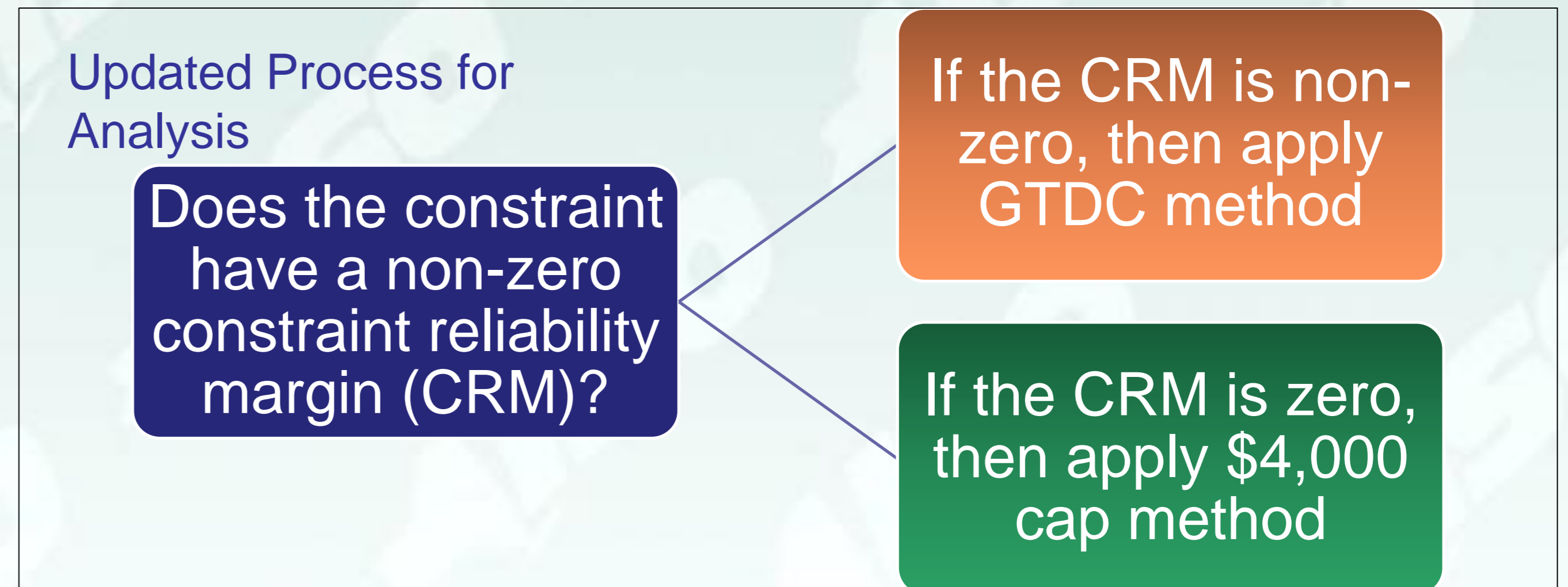
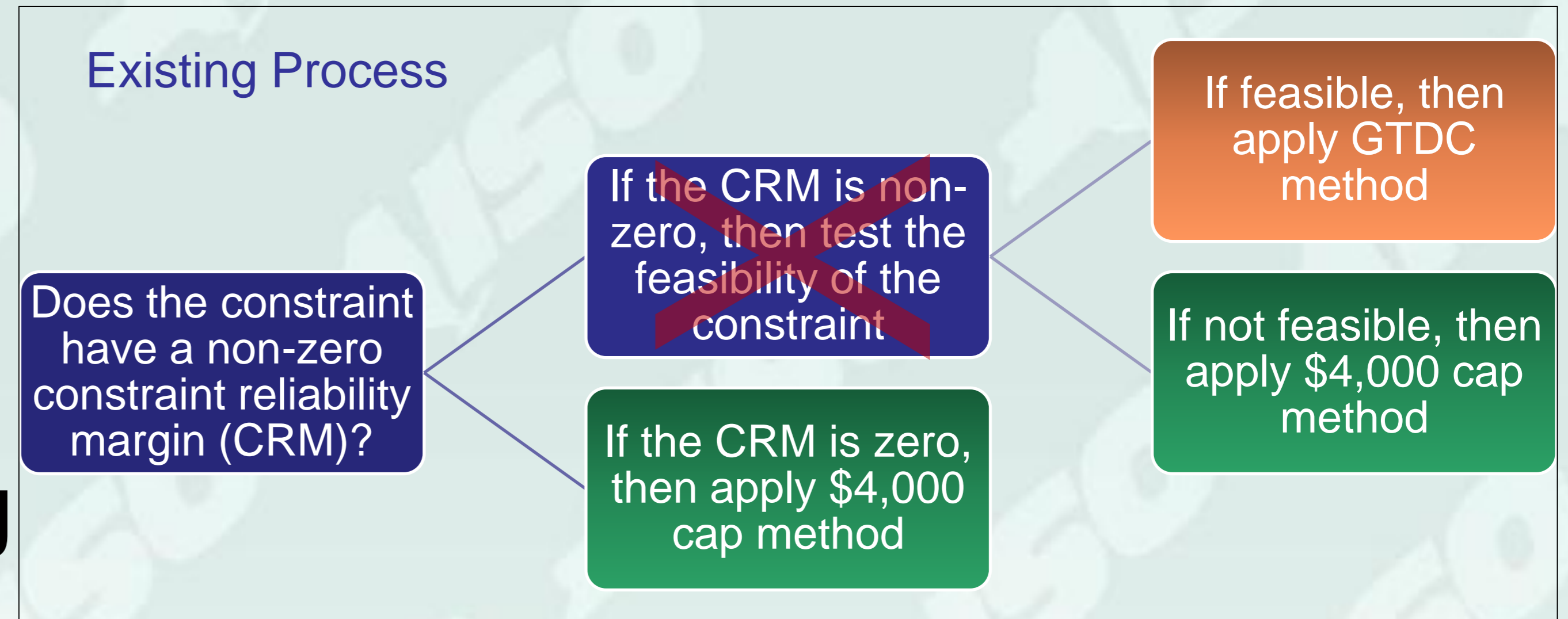
Background

- During the Q2 2016 SOM Report on August 29, 2016, stakeholders requested that the NYISO describe how the three-step Transmission Shortage Cost (often referred to as the graduated transmission demand curve or “GTDC”) works
 - *The GTDC is implemented within the NYISO’s security constrained unit commitment and dispatch algorithms used by the SCUC, RTC and RTD programs*
- On October 6, 2016, the NYISO notified Market Participants of a potential market problem related to the current implementation of the GTDC
- The NYISO provided an overview of the current implementation of the GTDC at the October 19, 2016 MIWG meeting
- The NYISO declared a Market Problem at the November 3, 2016 MIWG meeting

Analysis of GTDC Relaxation

- **At the November 3, 2016 MIWG meeting, stakeholders requested and NYISO agreed to present analysis on minimizing times when constraint relaxation is applied**

Please refer to the October 19, 2016 MIWG materials for more information on the GTDC and \$4,000 cap methods.

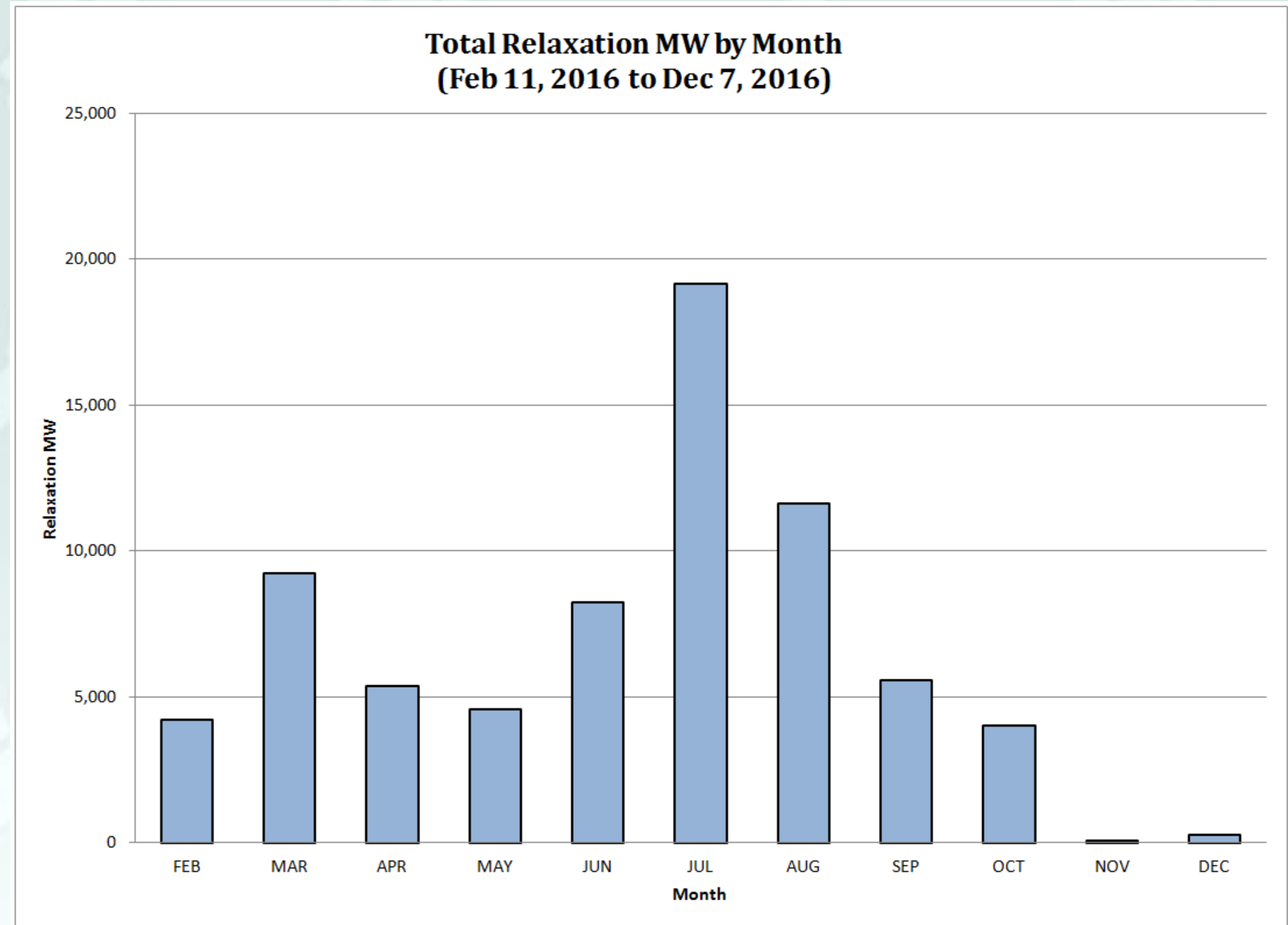


Analysis of GTDC Relaxation

- **The NYISO reran 17,658 RTD cases from July 2016 and August 2016 removing the feasibility screen (as shown on the previous slide)**
- **The NYISO's analysis is provided on the next 16 slides**

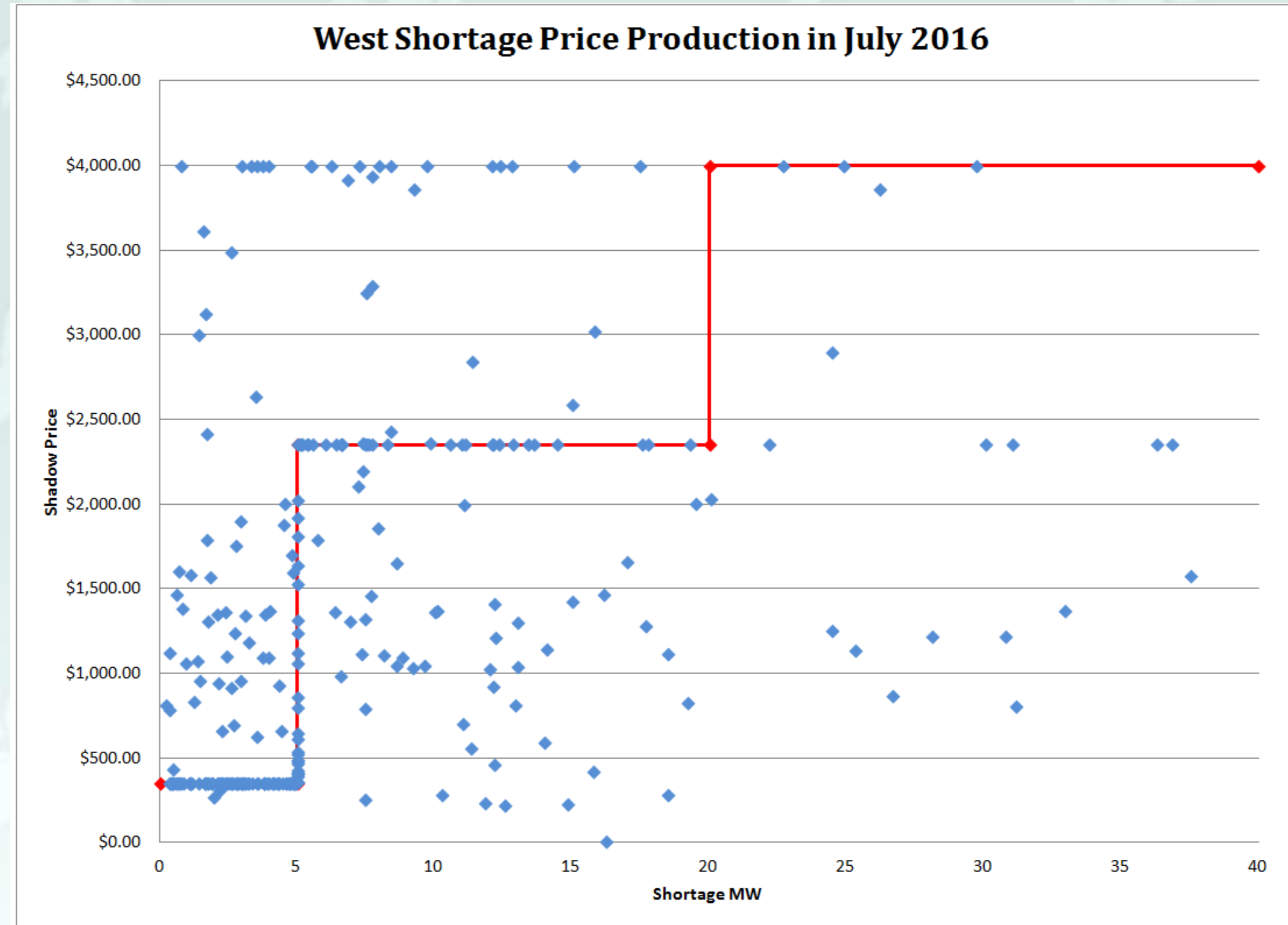
Analysis of GTDC Relaxation

- The NYISO chose July 2016 and August 2016 since those months exhibited the largest amounts of relaxation



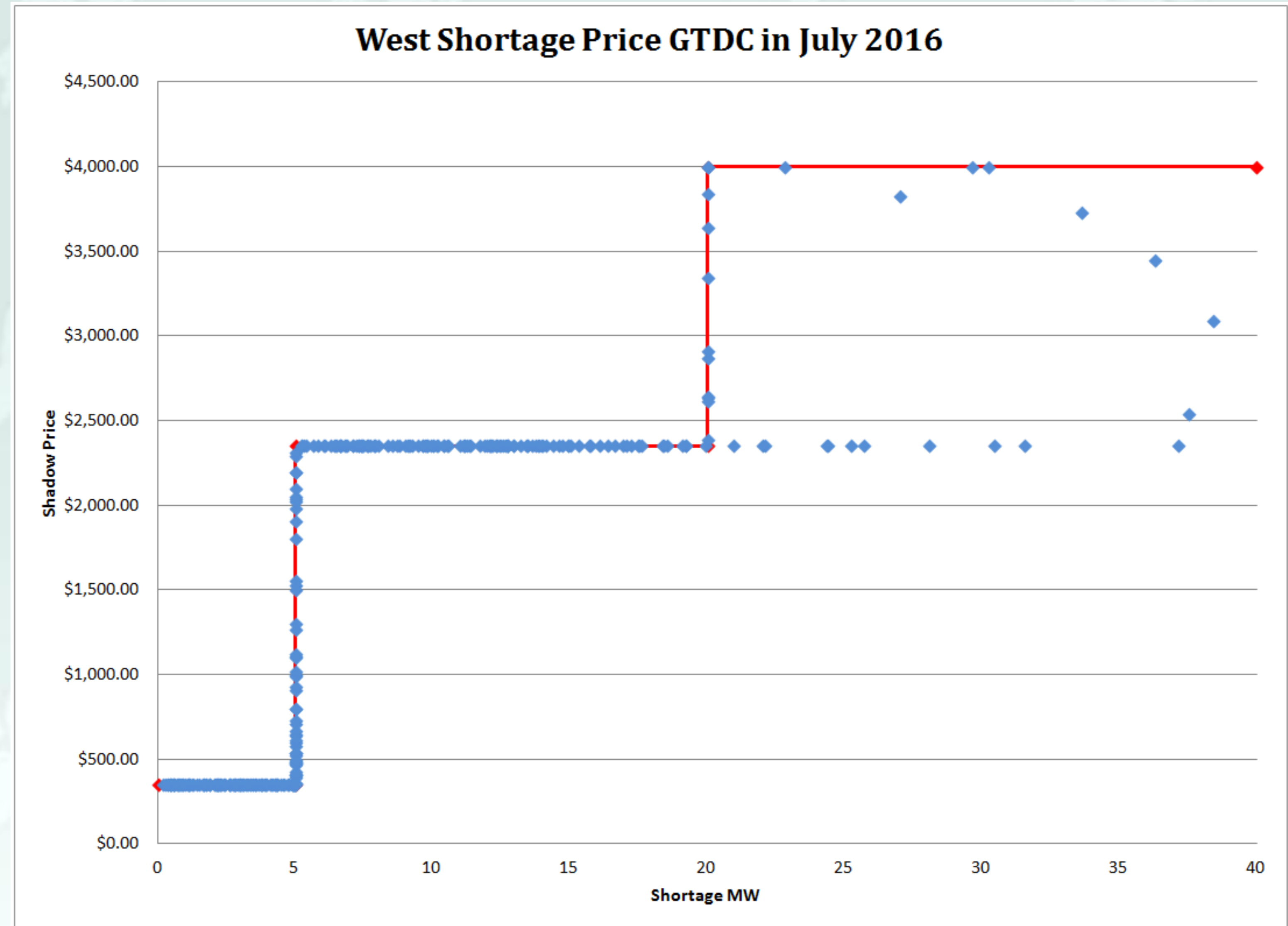
Analysis of GTDC Relaxation

- Western NY July 2016 constraint shadow prices using the **current** process



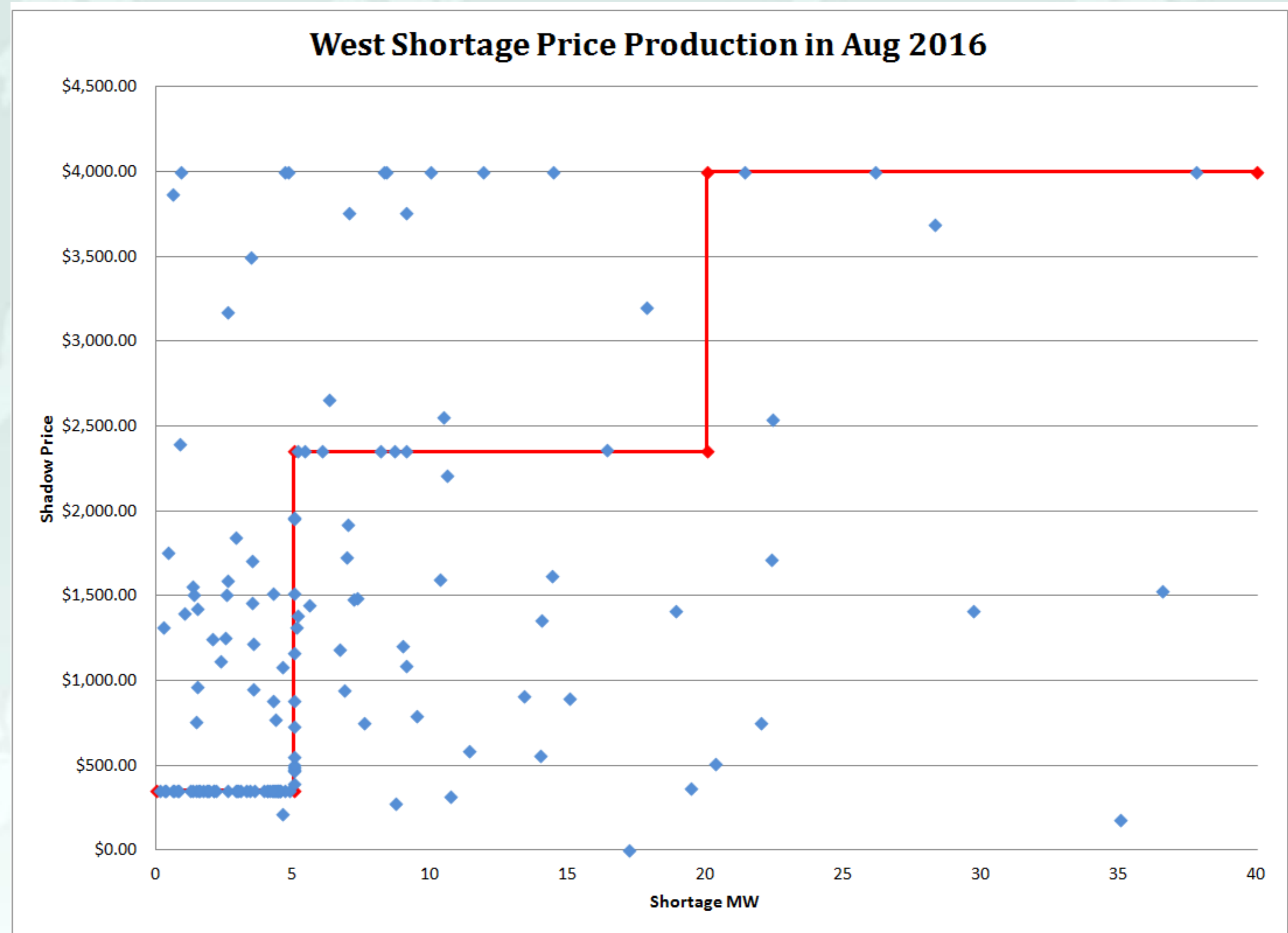
Analysis of GTDC Relaxation

- Western NY July 2016 constraint shadow prices using the **updated** process



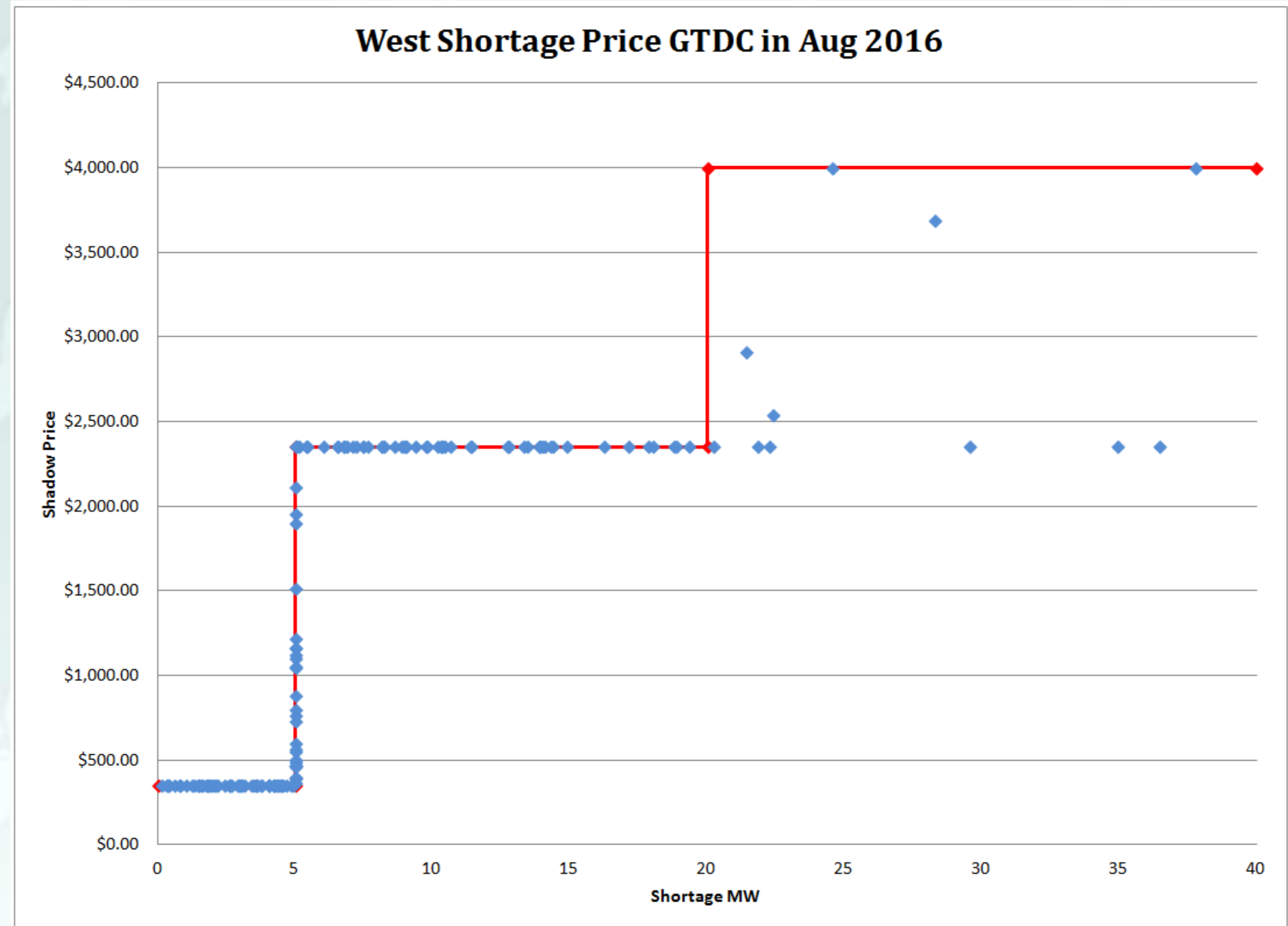
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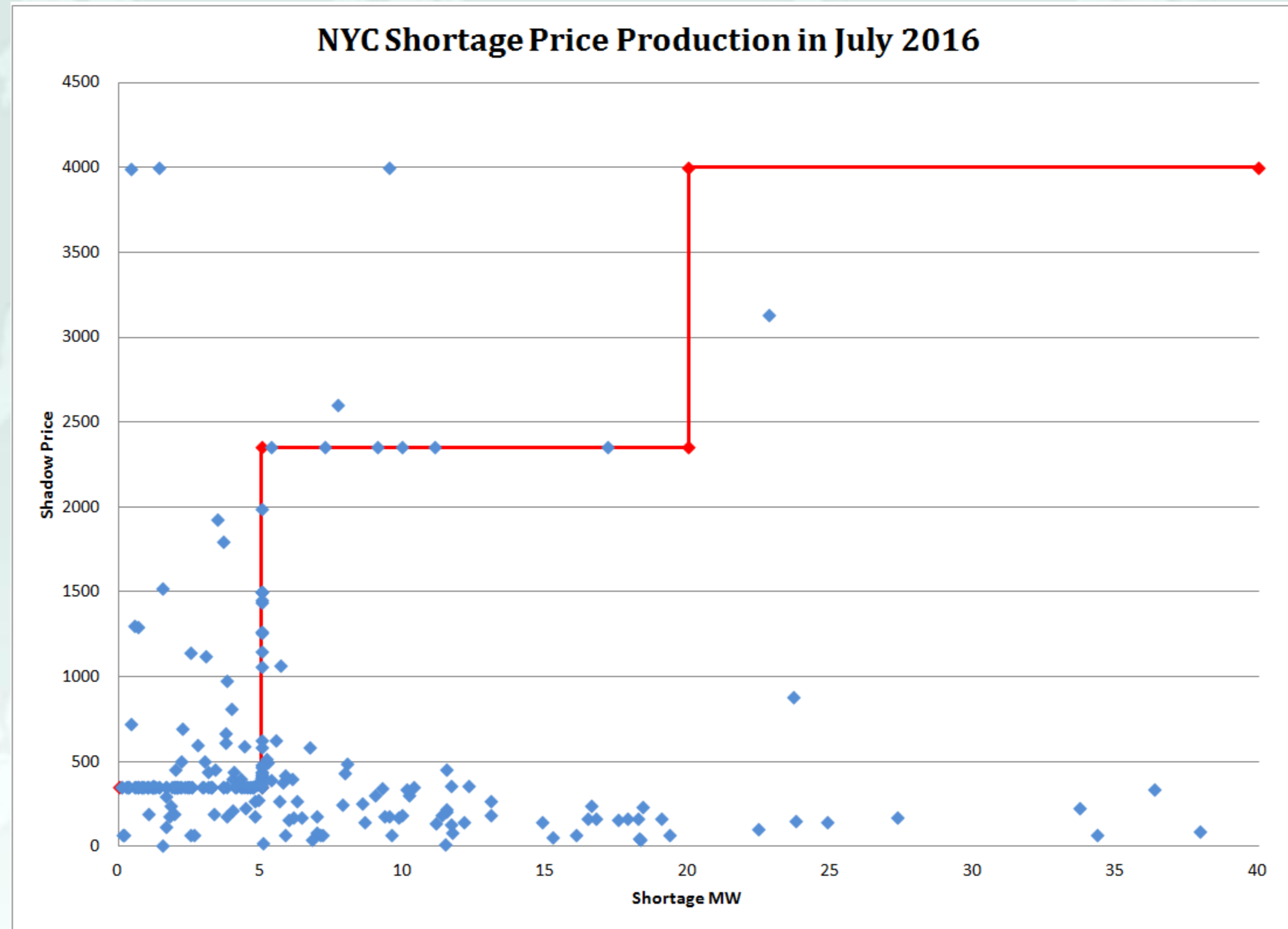
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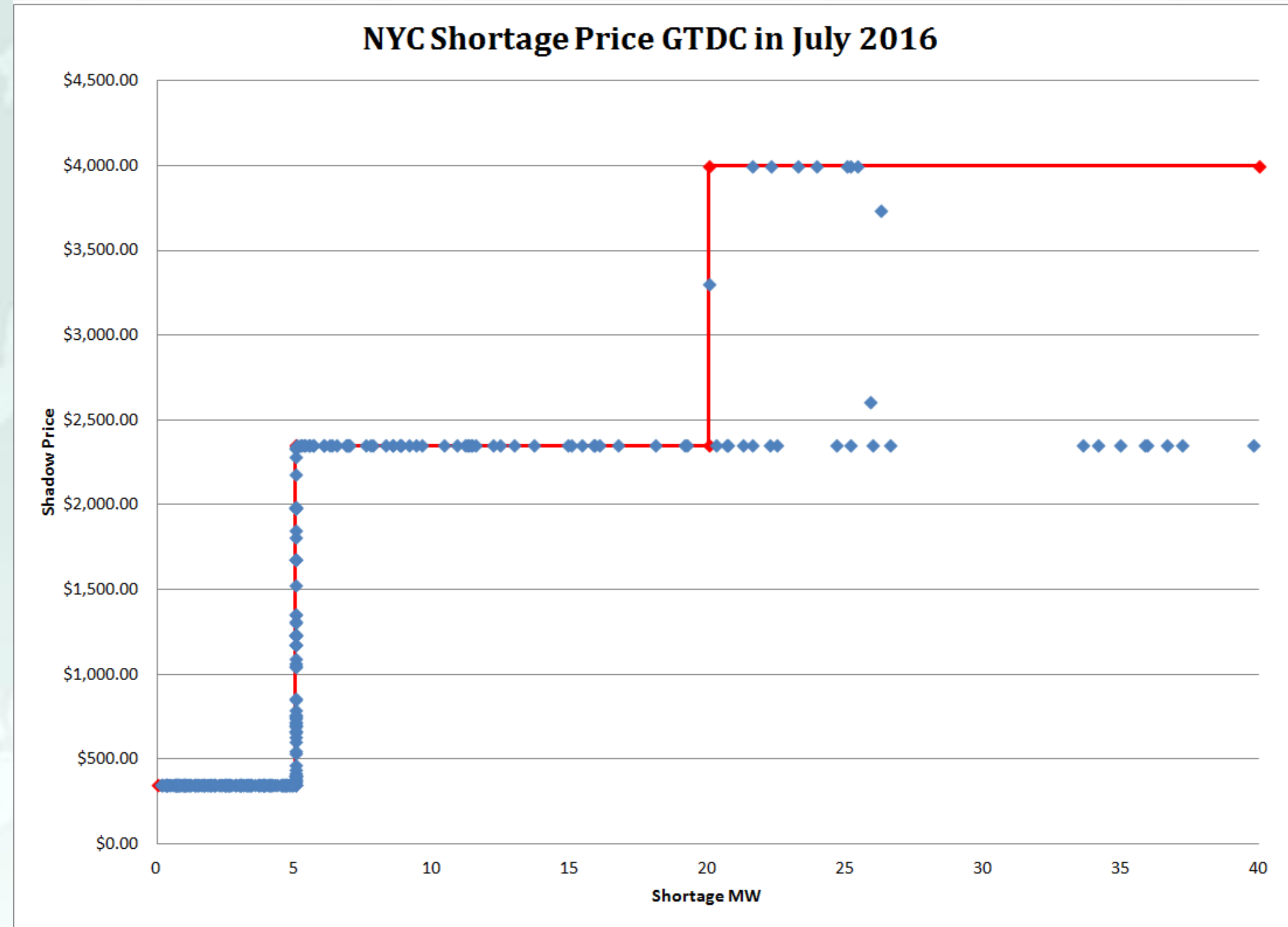
Analysis of GTDC Relaxation

- NYC July 2016 constraint shadow prices using the **current** process



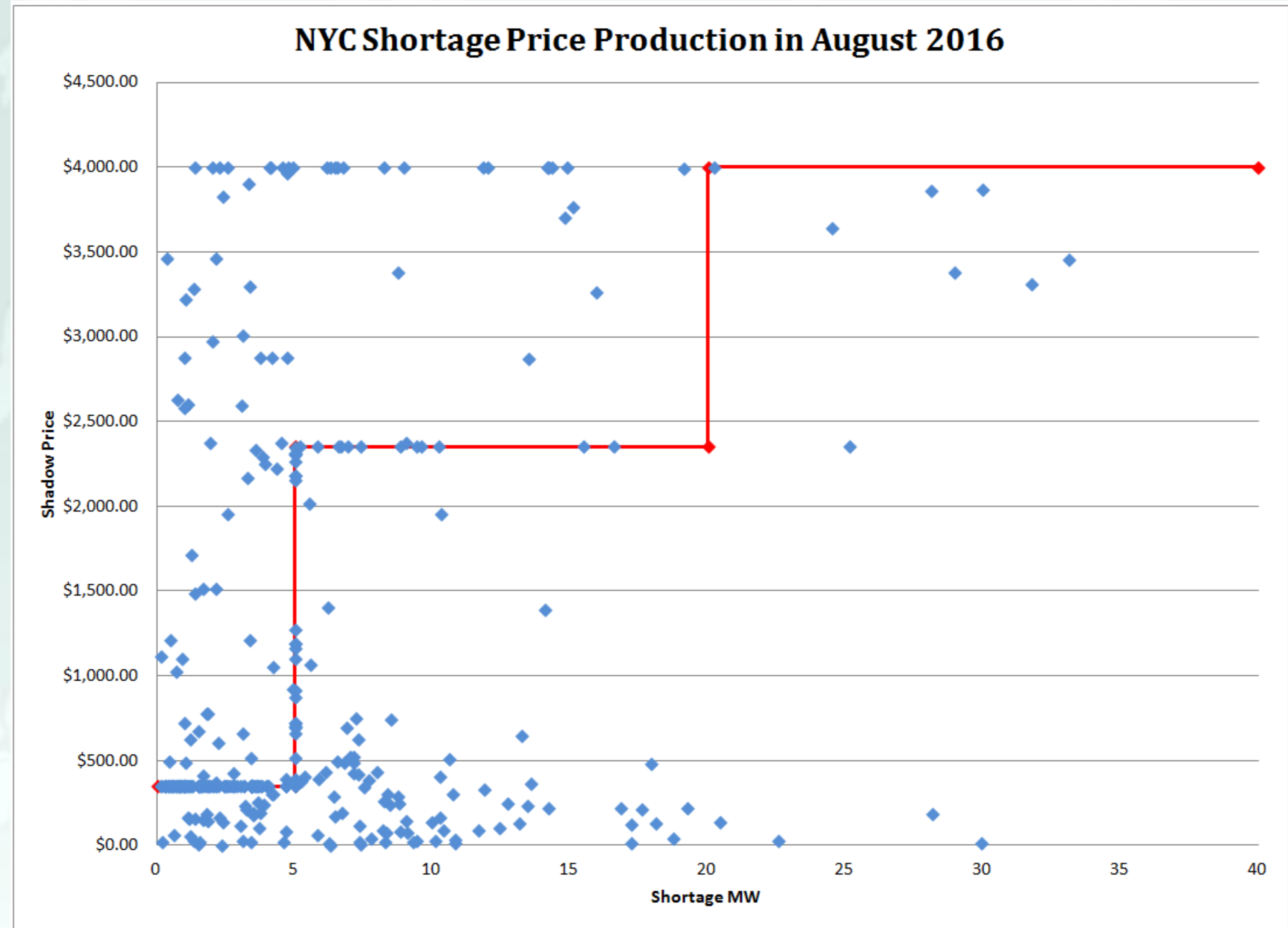
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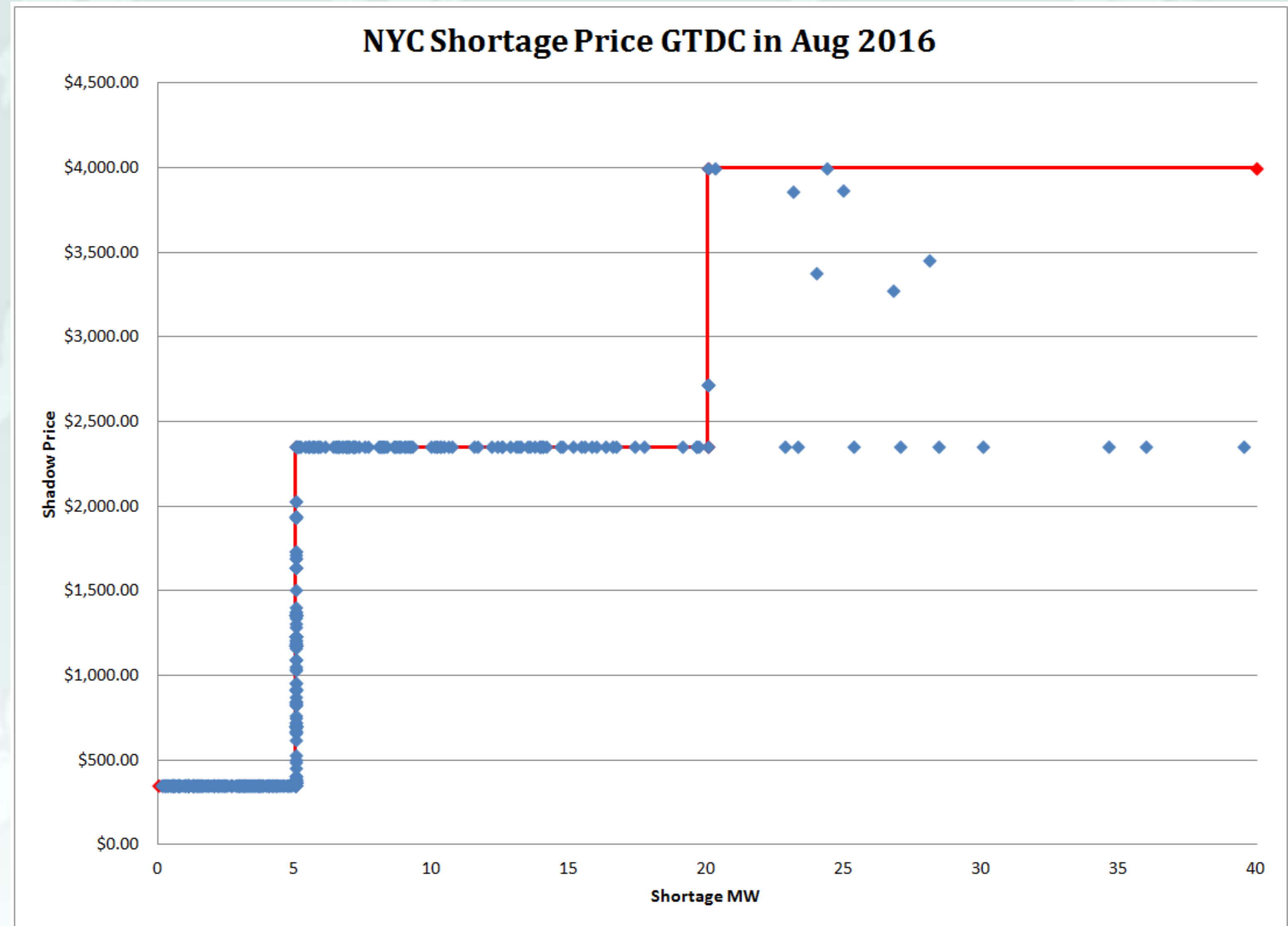
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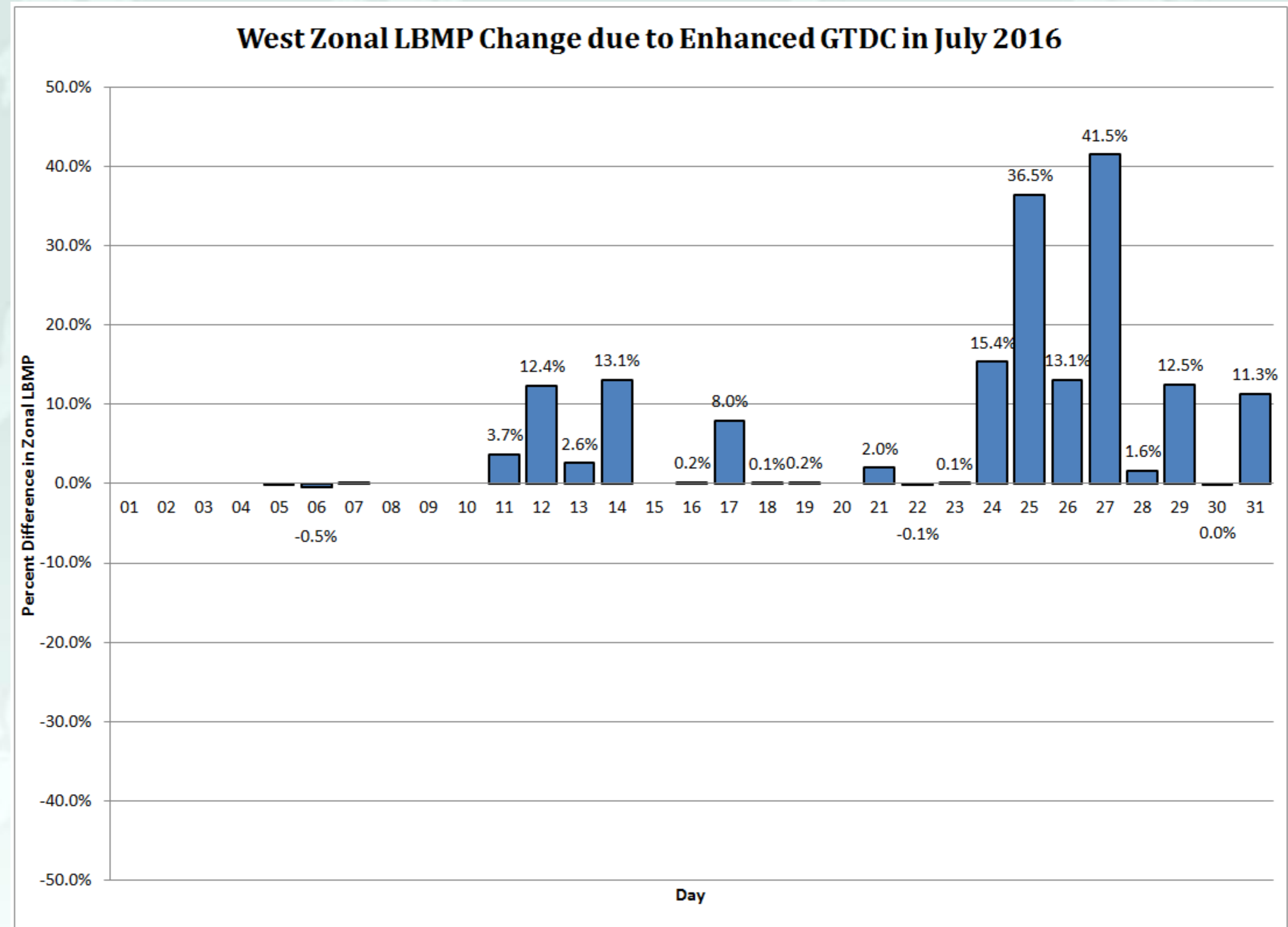
Analysis of GTDC Relaxation

- NYC August 2016 constraint shadow prices using the **updated** process



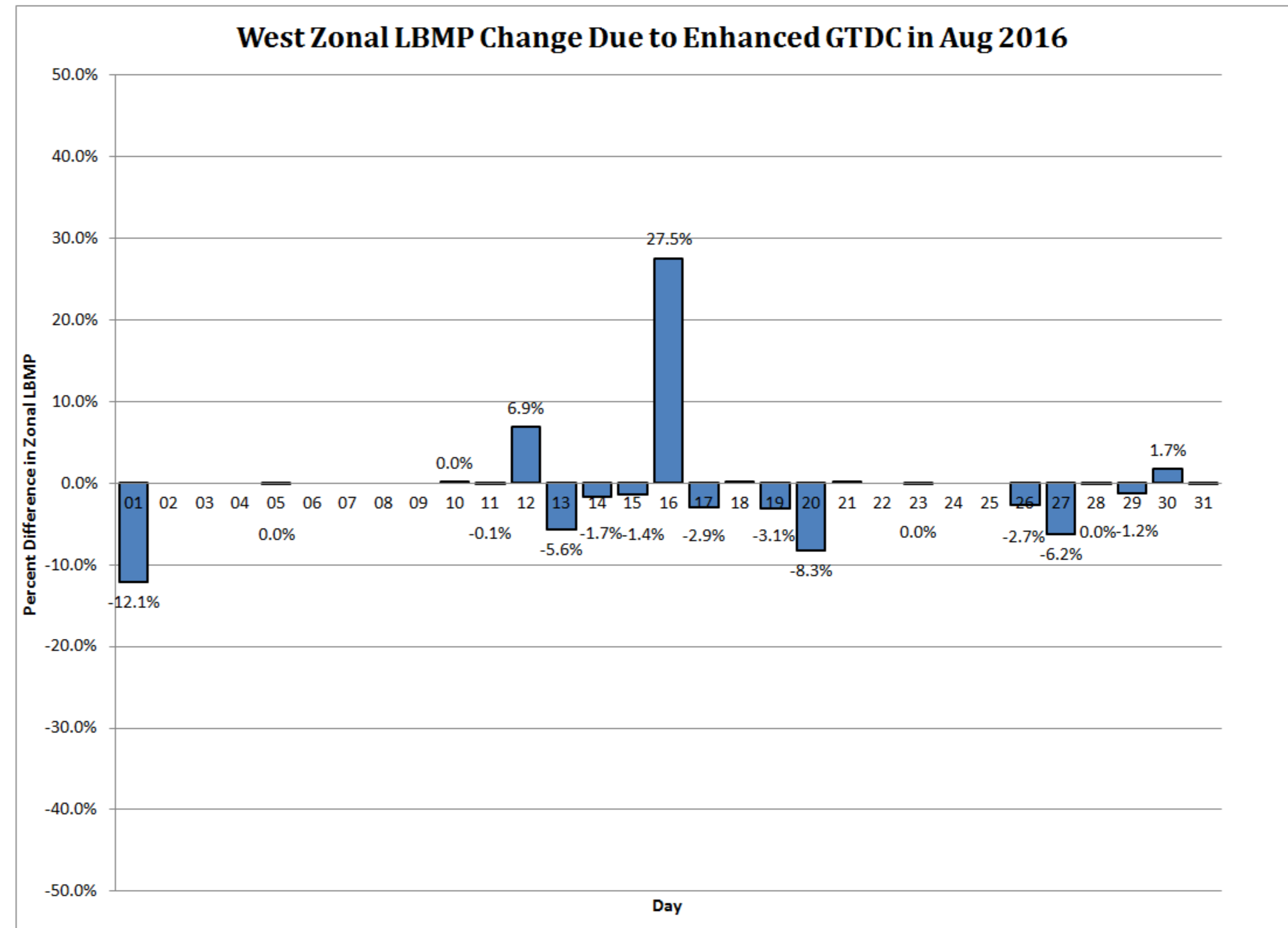
Analysis of GTDC Relaxation

- Impacts on West Zone LBMPs July 2016



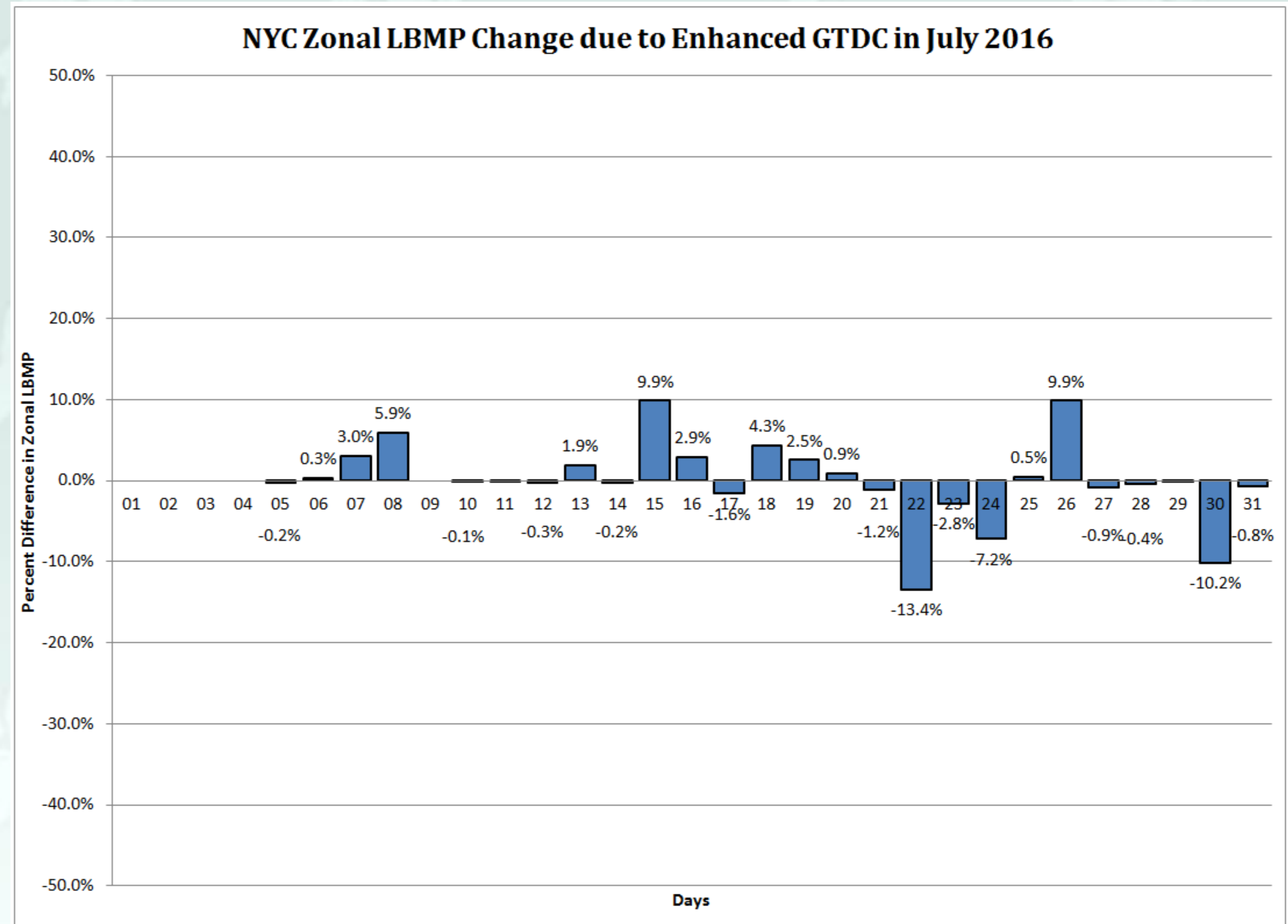
Analysis of GTDC Relaxation

- **Impacts on West Zone LBMPs August 2016**



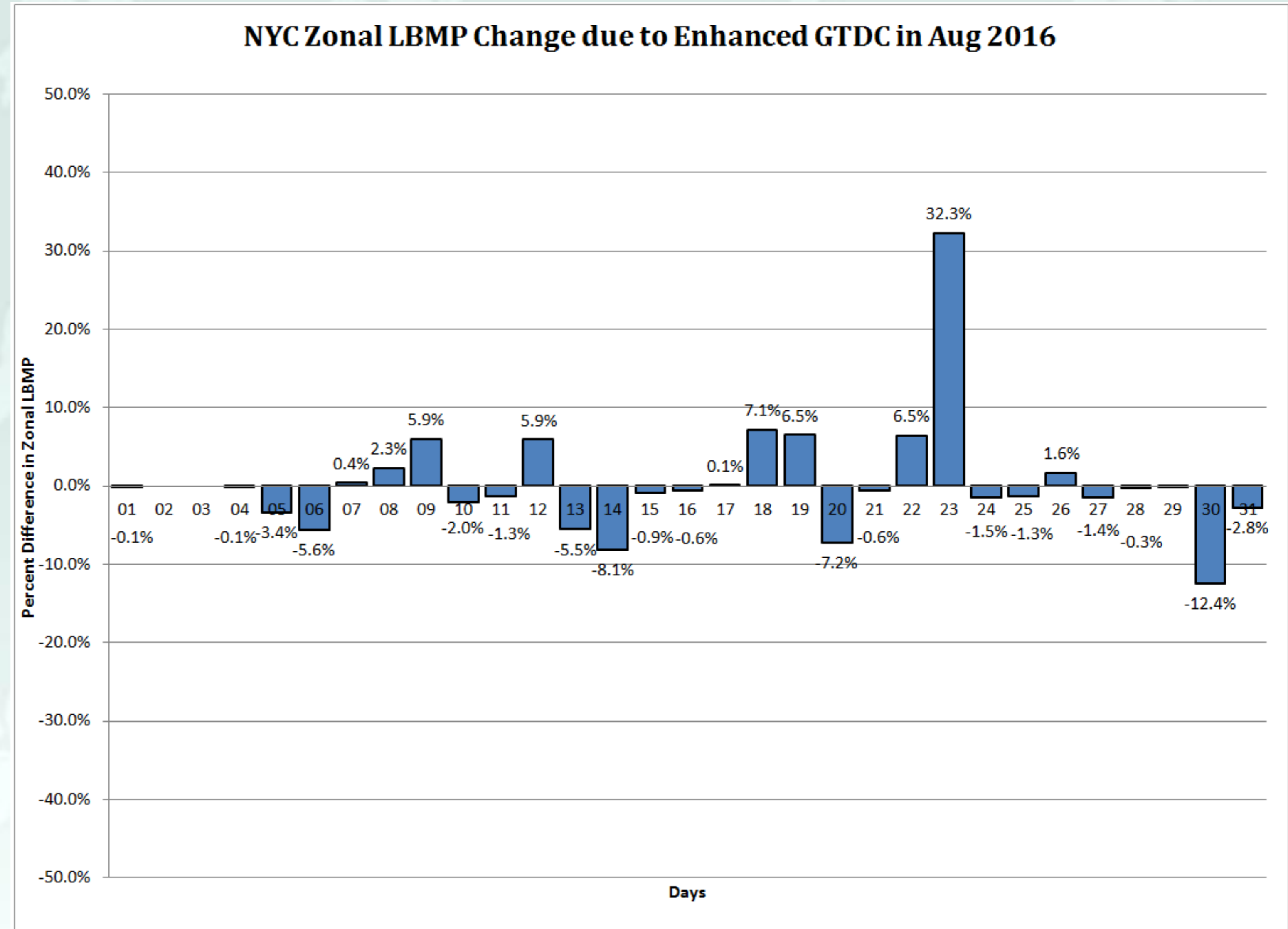
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- Impacts on NYC Zone LBMPs July 2016



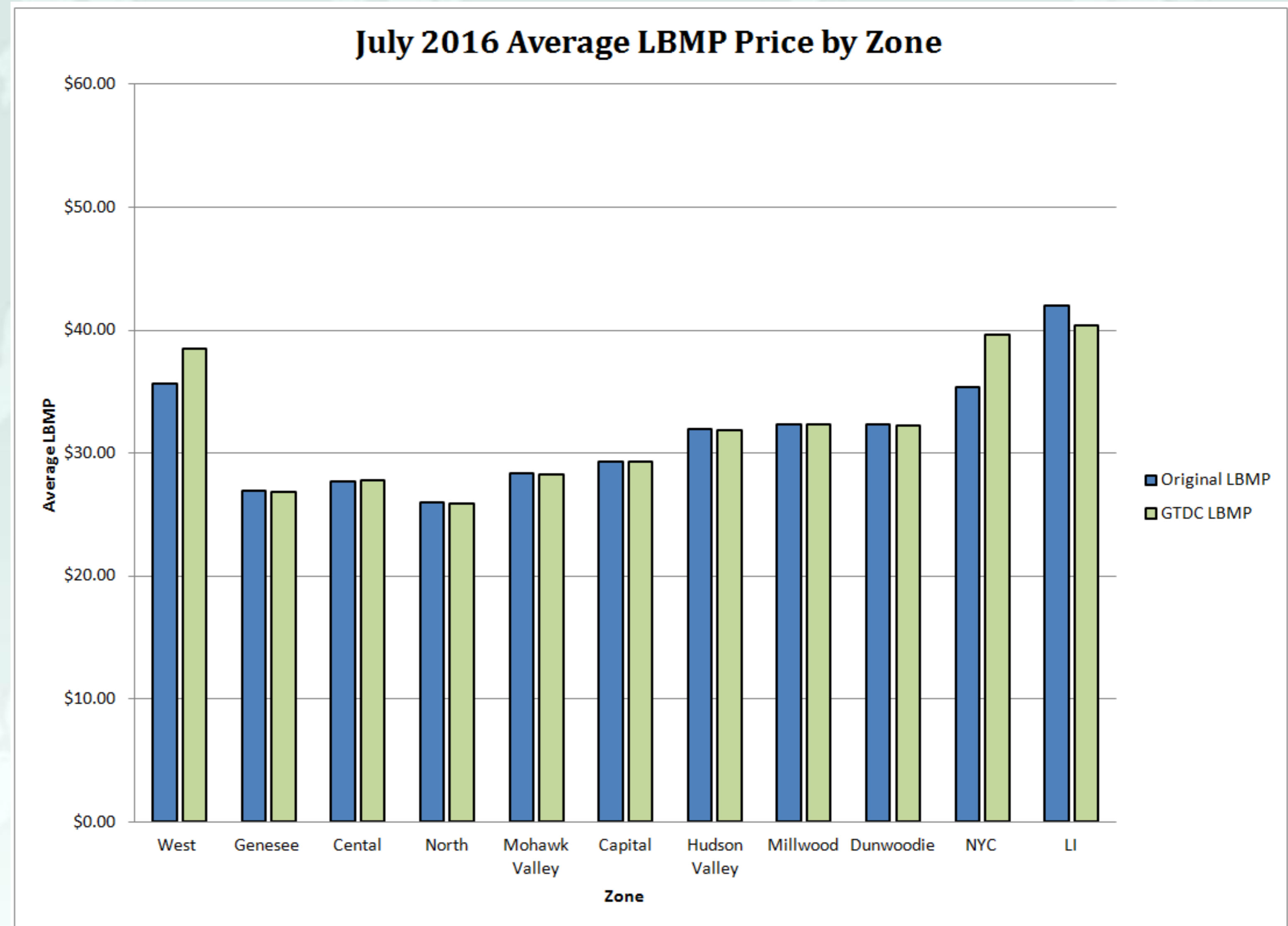
Analysis of GTDC Relaxation

- Impacts on NYC Zone LBMPs August 2016



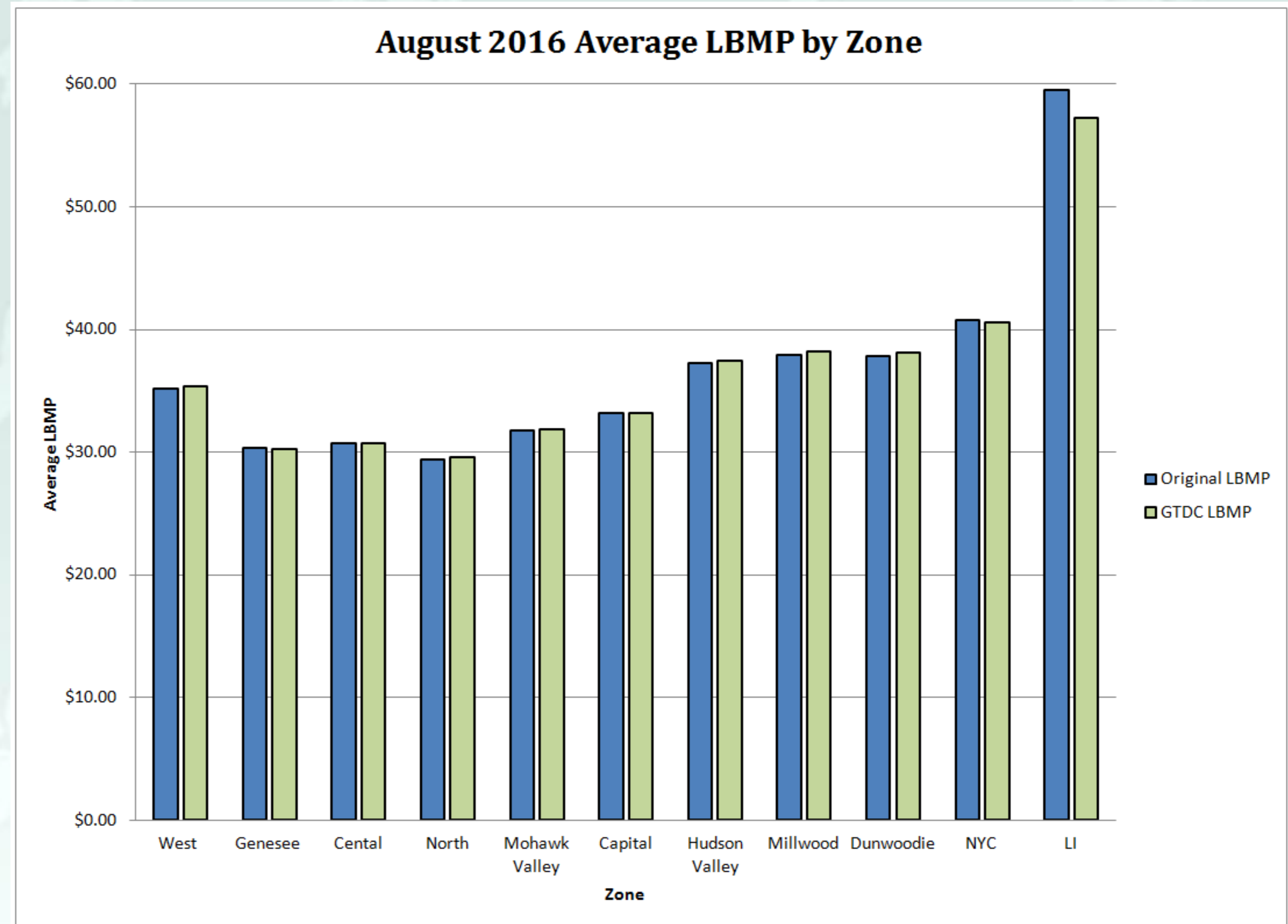
Analysis of GTDC Relaxation

- July 2016 Zonal LBMPs: Comparison of current process to updated process



Analysis of GTDC Relaxation

- August 2016 Zonal LBMPs: Comparison of **current** process to **updated** process



The NYISO's Proposal (1 of 2)

- **Based on its analysis, the NYISO is proposing to remove the feasibility screen and apply the GTDC method to all constraints with a non-zero CRM**
 - *The list of facilities and interfaces with a non-standard 20MW CRM is posted separately as part of this meeting material*
- **The NYISO is also proposing to revert the second step of the GTDC from \$2,350/MWh to \$1,175/MWh**
 - *The NYISO has determined that its concern with forgoing dispatch to secure transmission constraints when all eastern reserve locations and eastern reserve products are short is not a practical concern*
 - *The NYISO has observed that it is more likely to be trading off some amount of Regulation Service and Eastern 10 Minute Reserves with dispatch for transmission constraints*
 - **Regulation Capacity Demand Curve is three steps –**
 1. *Up to 25MW @ \$80/MWh*
 2. *Greater than 25MW and up to 80MW @ \$400/MWh*
 3. *Greater than 80MW @ \$775/MWh*
 - **Eastern 10 Minute Operating Reserve Demand Curve – any shortage @ \$775/MWh**
 - **Simultaneous Partial Shortages of Regulation Service and Eastern 10 Minute Reserves would yield a \$1175/MWh shortage cost**

The NYISO's Proposal (2 of 2)

- The NYISO would like to pursue software changes to implement the updated process with a modified value for the second step of the GTDC (see Slide 21) and update the tariff to reflect the updated process including the use of constraint relaxation and treatment of facilities with zero CRM
- The NYISO will work with stakeholders through the normal shared governance process to vet the proposal and accompanying tariff revisions
 - *The NYISO will not update any GTDC software without first gaining FERC's approval of the necessary tariff revisions to reflect the proposed updated process*

Waiver Discussion

- **The NYISO will be filing a waiver request with FERC retroactive to the February 11, 2016 implementation of the GTDC**
 - *The NYISO will request that the waiver remain in effect until the inconsistency between the current software implementation and the tariff can be resolved*

Next Steps

- **Before the end of 2016**
 - *File waiver with the FERC*
- **January-February 2017**
 - *Work with Market Participants on the proposal and tariff*
 - *Perform a Consumer Impact Assessment of any proposed changes*
- **March 2017**
 - *Seek BIC and MC approval*
- **April 2017**
 - *Seek Board of Directors approval*
 - *File tariff revisions with FERC for approval*
- **June 2017**
 - *Subject to timely approvals from stakeholders, the Board of Directors and FERC, implement software changes to align software implementation with the revised tariff*
- **Please contact Mike DeSocio (mdesocio@nyiso.com) with questions or concerns**

Questions?



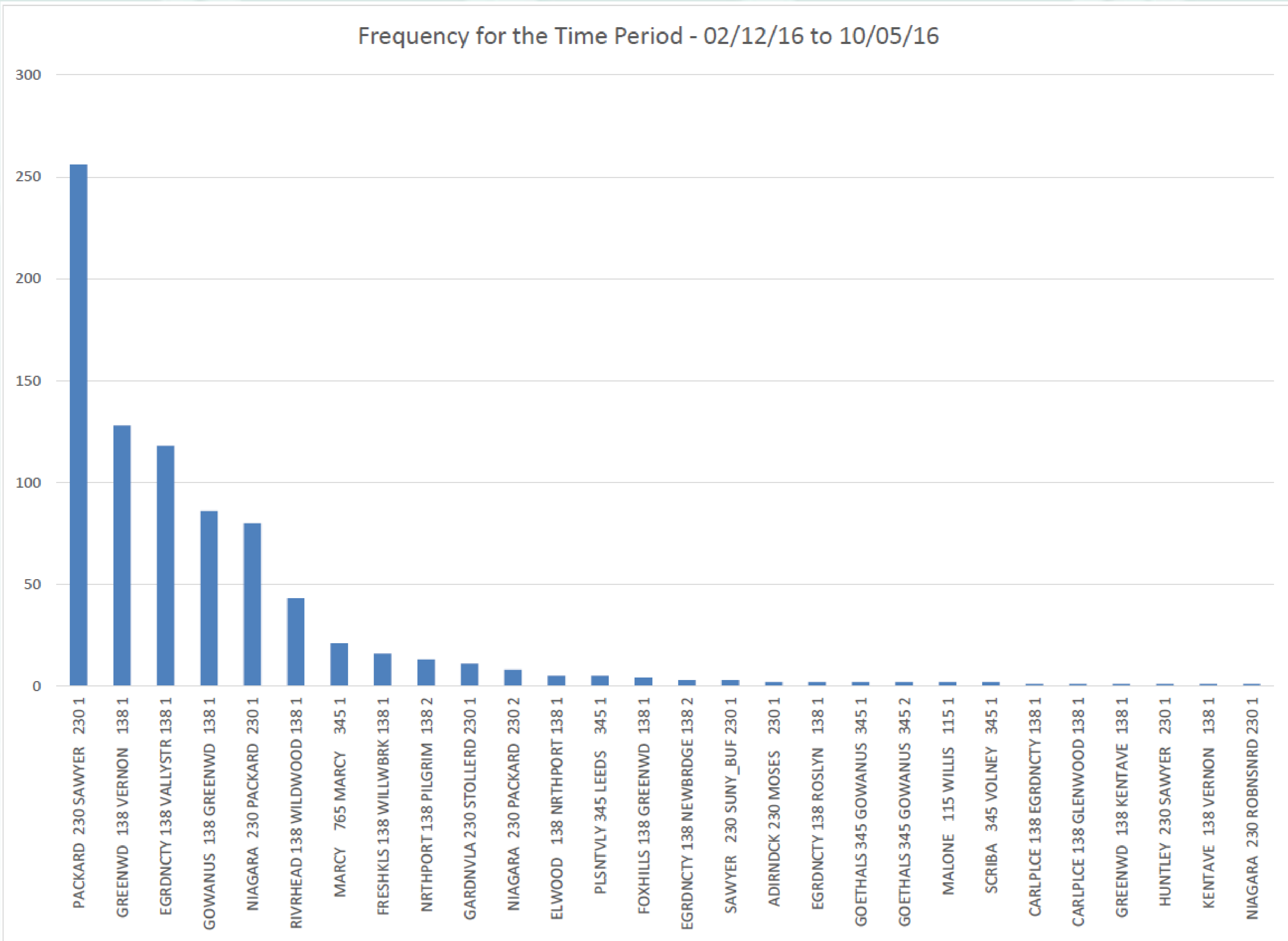
Appendix

- **Stakeholders requested additional analysis at the November 3rd MIWG.**
- **The following slides include data to address those requests:**
 - *Frequency of facilities by interval count (various forms)*
 - *Facility contribution to excess uplift (tabular and graphical)*

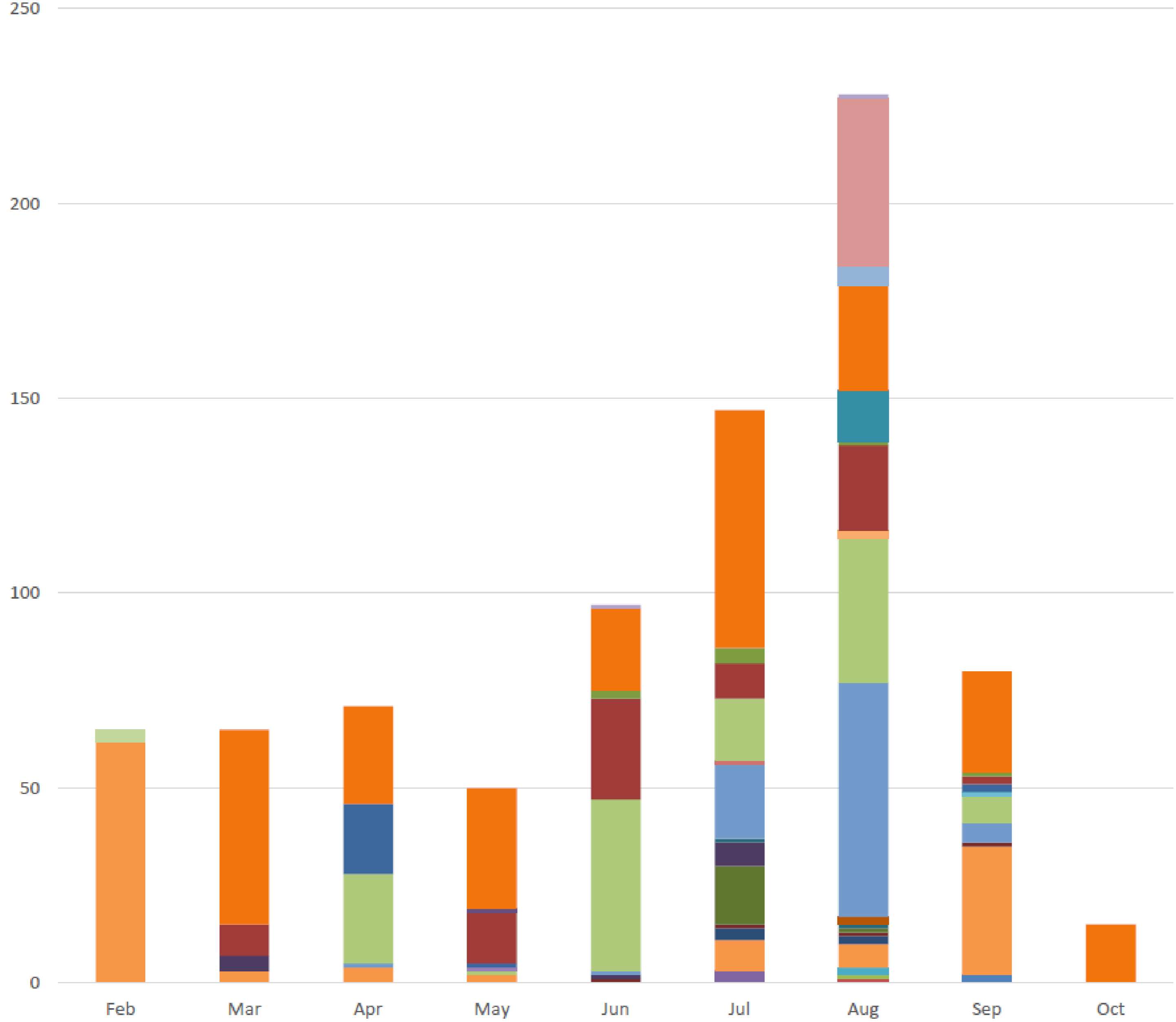
Frequency overall - Feb 12 to Oct 5th

Limiting Facilities	Frequency
PACKARD 230 SAWYER 230 1	256
GREENWD 138 VERNON 138 1	128
EGRDNCTY 138 VALLYSTR 138 1	118
GOWANUS 138 GREENWD 138 1	86
NIAGARA 230 PACKARD 230 1	80
RIVRHEAD 138 WILDWOOD 138 1	43
MARCY 765 MARCY 345 1	21
FRESHKLS 138 WILLWBRK 138 1	16
NRTHPORT 138 PILGRIM 138 2	13
GARDNVLA 230 STOLLERD 230 1	11
NIAGARA 230 PACKARD 230 2	8
ELWOOD 138 NRTHPORT 138 1	5
PLSNTVLY 345 LEEDS 345 1	5
FOXHILLS 138 GREENWD 138 1	4
EGRDNCTY 138 NEWBRDGE 138 2	3
SAWYER 230 SUNY_BUF 230 1	3
ADIRNDCK 230 MOSES 230 1	2
EGRDNCTY 138 ROSLYN 138 1	2
GOETHALS 345 GOWANUS 345 1	2
GOETHALS 345 GOWANUS 345 2	2
MALONE 115 WILLIS 115 1	2
SCRIBA 345 VOLNEY 345 1	2
CARLPLCE 138 EGRDNCTY 138 1	1
CARLPLCE 138 GLENWOOD 138 1	1
GREENWD 138 KENTAVE 138 1	1
HUNTLEY 230 SAWYER 230 1	1
KENTAVE 138 VERNON 138 1	1
NIAGARA 230 ROBNSNRD 230 1	1

Frequency for the Time Period - 02/12/16 to 10/05/16



Frequency by Month

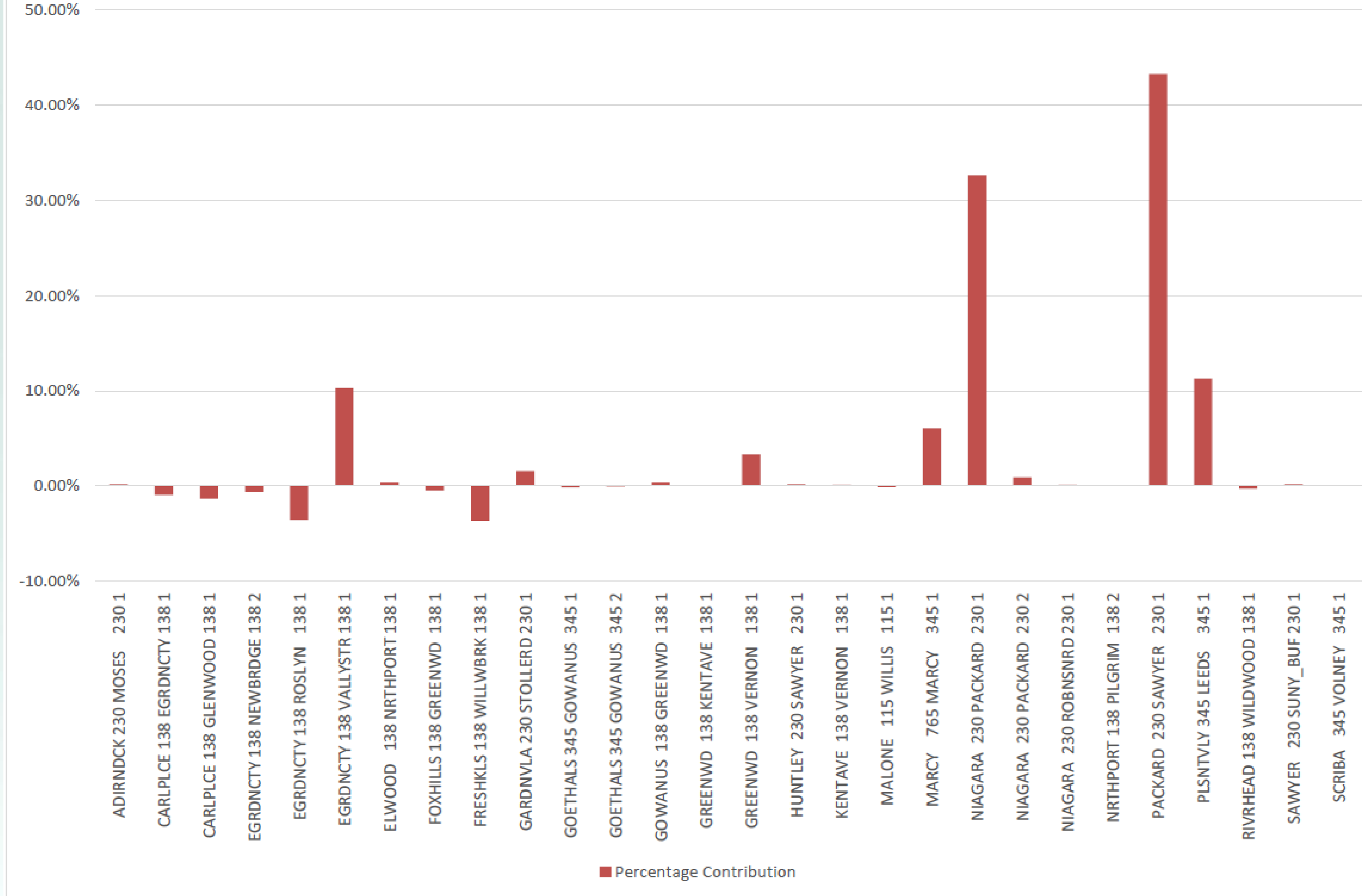


- SCRIBA 345 VOLNEY 345 1
- SAWYER 230 SUNY_BUF 230 1
- RIVRHEAD 138 WILDWOOD 138 1
- PLSNTVLY 345 LEEDS 345 1
- PACKARD 230 SAWYER 230 1
- NRTHPORT 138 PILGRIM 138 2
- NIAGARA 230 ROBNSNRD 230 1
- NIAGARA 230 PACKARD 230 2
- NIAGARA 230 PACKARD 230 1
- MARCY 765 MARCY 345 1
- MALONE 115 WILLIS 115 1
- KENTAVE 138 VERNON 138 1
- HUNTLEY 230 SAWYER 230 1
- GREENWD 138 VERNON 138 1
- GREENWD 138 KENTAVE 138 1
- GOWANUS 138 GREENWD 138 1
- GOETHALS 345 GOWANUS 345 2
- GOETHALS 345 GOWANUS 345 1
- GARDNVLA 230 STOLLERD 230 1
- FRESHKLS 138 WILLWBRK 138 1
- FOXHILLS 138 GREENWD 138 1
- ELWOOD 138 NRTHPORT 138 1
- EGRDNCTY 138 VALLYSTR 138 1
- EGRDNCTY 138 ROSLYN 138 1
- EGRDNCTY 138 NEWBRDGE 138 2

Percentage contributions of the limiting facilities to the excess BMCR.

Limiting Facilities	Percentage Contributions
ADIRNDCK 230 MOSES 230 1	0.20%
CARLPLCE 138 EGRDNCTY 138 1	-0.93%
CARLPLCE 138 GLENWOOD 138 1	-1.32%
EGRDNCTY 138 NEWBRDGE 138 2	-0.61%
EGRDNCTY 138 ROSLYN 138 1	-3.52%
EGRDNCTY 138 VALLYSTR 138 1	10.27%
ELWOOD 138 NRTHPORT 138 1	0.35%
FOXHILLS 138 GREENWD 138 1	-0.45%
FRESHKLS 138 WILLWBRK 138 1	-3.61%
GARDNVLA 230 STOLLERD 230 1	1.57%
GOETHALS 345 GOWANUS 345 1	-0.15%
GOETHALS 345 GOWANUS 345 2	-0.06%
GOWANUS 138 GREENWD 138 1	0.35%
GREENWD 138 KENTAVE 138 1	0.00%
GREENWD 138 VERNON 138 1	3.34%
HUNTLEY 230 SAWYER 230 1	0.20%
KENTAVE 138 VERNON 138 1	0.12%
MALONE 115 WILLIS 115 1	-0.14%
MARCY 765 MARCY 345 1	6.09%
NIAGARA 230 PACKARD 230 1	32.64%
NIAGARA 230 PACKARD 230 2	0.90%
NIAGARA 230 ROBNSNRD 230 1	0.11%
NRTHPORT 138 PILGRIM 138 2	0.08%
PACKARD 230 SAWYER 230 1	43.26%
PLSNTVLY 345 LEEDS 345 1	11.31%
RIVRHEAD 138 WILDWOOD 138 1	-0.28%
SAWYER 230 SUNY_BUF 230 1	0.20%
SCRIBA 345 VOLNEY 345 1	0.08%

Percentage Contribution to Excess BMCR (\$3.5 M.)



- **The Mission of the New York Independent System Operator, in collaboration with its 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 policy makers, stakeholders and investors in the power system*

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