# Update on Facilities Secured in the Market Models

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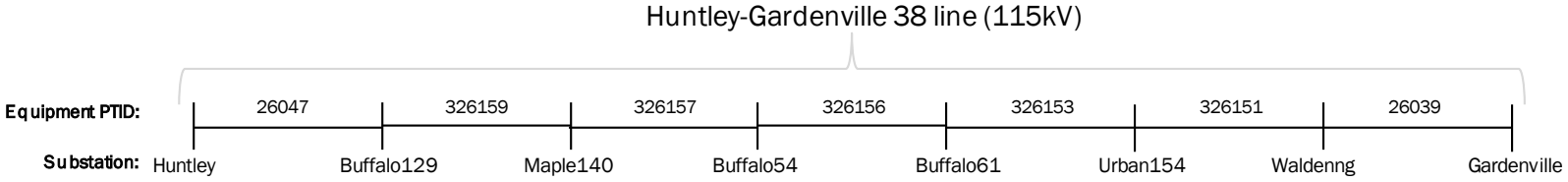
# Background

- Pursuant to the "Process for Determining Facilities Secured in the Market Models", as described in Section 5 of the Transmission and Dispatch Operations Manual, the NYISO has identified several 115kV transmission line segments that it will be removing from being secured in the market models.
- The purpose of this presentation is to provide details about this action in addition to the official notice communicated to stakeholders via Attachment A of the Outage Scheduling Manual.

# Affected Facilities

- A number of facilities representing segments of the same transmission line will be removed from being secured in the market models, effective 09/24/2019. The term 'line segment' refers to sections of the same transmission line path.
  - The segment of the transmission line that is most limiting and/or binding most frequently will remain as secured in the market models.
- The line segments being removed are listed in Appendix A of this presentation.
- Example of line segments along the same transmission line path:

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# Considerations for Removal

- **When the identified line segments are binding in real-time, they may occasionally be priced via the transmission demand curve mechanism due to a lack of available physical resources capable of providing the needed relief. Other line segments that are in-series with them are also often binding simultaneously, with constraints for all such in-series line segments also being priced by the transmission demand curve mechanism (see Appendix B for additional details regarding the current transmission constraint pricing logic).**
  - As currently implemented, the transmission demand curve mechanism applies any needed relief from the demand curve in an isolated fashion. Therefore, any relief provided by the demand curve applies to only the particular constrained line segment without consideration of the corresponding impacts that such relief may have on other, lesser overloaded line segments.
  - In contrast, if a physical resource were available to provide relief under similar conditions, the market software would account for the relief available from the physical resource when assessing multiple constraints on a single line segment, as well as the ability of the physical resource to simultaneously provide relief to in-series line segments.

# Considerations for Removal - continued

- The software appropriately makes capability available from the transmission demand curve mechanism to help resolve constraints. Pricing outcomes are being determined consistent with the manner in which the transmission demand curve mechanism is currently being applied.
- Because of this interaction with the transmission demand curve mechanism, it is more appropriate to include only the most limiting line segment among segments in-series with one another within the market models, while taking into consideration resources along the transmission path.
    - Securing the most limiting in-series element will continue to ensure that all less restricted line segments on the same transmission line path will be relieved. This facilitates price signals that better reflect system conditions, while reducing the likelihood of multiple constraints on in-series segments binding and being priced by the transmission demand curve mechanism at the same time.

# Additional Actions

- **In the longer-term, the NYISO will be pursuing a more dynamic application of the transmission constraint pricing logic as part of the enhancements being developed through the "Constraint Specific Transmission Shortage Pricing" initiative.**
  - However, the NYISO recognizes that in balancing multiple priorities for near-term market design enhancements, it could be several years before this project effort is completed and implemented.
- **As a result, the NYISO is evaluating what, if any, potential near-term improvements may be available to further reduce the instances of multiple binding constraints priced by the transmission demand curve mechanism on related constrained line segments (i.e., segments in-series with one another, or the same segment binding on the base case and a contingency).**
  - To the extent any near-term improvements are identified, the NYISO plans to further discuss them with stakeholders.

# Appendix A: Affected Line Segments

# Affected Line Segments

| Line | Colton-Browns Falls 1 |
|---|---|
| Segment | BROWNFLS-HIGLEY___115_1 |
| Segment | ~~COLTON___HIGLEY___115_1~~ |

| Line | Colton-Browns Falls 12 |
|---|---|
| Segment | FLATROCK-BROWNFLS_115_2 |
| Segment | ~~COLTON___FLATROCK_115_2~~ |

| Line | Dennison-Colton 4 |
|---|---|
| Segment | ~~DENNISON-NORFOLK__115_4~~ |
| Segment | ~~NORFOLK_ LAWRNCAV_115_4~~ |
| Segment | ~~LAWRNCAV-SUGARISL_115_4~~ |
| Segment | SUGARISL-COLTON___115_4 |

| Line | Dennison-Colton 5 |
|---|---|
| Segment | ~~DENNISON-LAWRNCAV_115_5~~ |
| Segment | ~~LAWRNCAV-HANAWAFL_115_5~~ |
| Segment | HANAWAFL-COLTON___115_5 |

| Line | Station82-Station121 |
|---|---|
| Segment | ~~STA_56___STA_82___115_23~~ |
| Segment | STA_56__-QUAKERRD_115_23 |

| Line | Mortimer-Station122 24 |
|---|---|
| Segment | ~~MORTIMER-STA_56___115_24~~ |
| Segment | PANNELRG-STA_56___115_24 |

| Line | Mortimer-Station122 25 |
|---|---|
| Segment | ~~MORTIMER-STA_56___115_25~~ |
| Segment | PANNELRG-STA_56___115_25 |

| Line | Huntley-Gardenville 38 |
|---|---|
| Segment | HUNTLEY_-BUFAL129_115_38 |
| Segment | ~~BUFAL129-MAPLE140_115_38~~ |
| Segment | ~~MAPLE140-BUFALO54_115_38~~ |
| Segment | ~~BUFALO54-BUFALO61_115_38~~ |
| Segment | ~~BUFALO61-URBAN154_115_38~~ |
| Segment | ~~URBAN154-WALDENNG_115_38~~ |
| Segment | ~~WALDENNG-GARDNVLB_115_38~~ |

| Line | Huntley-Gardenville 39 |
|---|---|
| Segment | ~~HUNTLEY_ BUFAL129_115_39~~ |
| Segment | BUFAL129-MAPLE140_115_39 |
| Segment | ~~MAPLE140-BUFALO54_115_39~~ |
| Segment | ~~BUFALO54-BUFALO61_115_39~~ |
| Segment | ~~BUFALO61-URBAN154_115_39~~ |
| Segment | ~~URBAN154-DALEROAD_115_39~~ |
| Segment | ~~DALEROAD-GARDNVLB_115_39~~ |

| Line | Niagara-Lockport 101 |
|---|---|
| Segment | NIAGARA_-SANBORN__115_101 |
| Segment | ~~SANBORN_ LOCKPORT_115_101~~ |

| Line | Niagara-Lockport 102 |
|---|---|
| Segment | NIAGARA_-SANBORN__115_102 |
| Segment | ~~SANBORN_ SHAWNERD_115_102~~ |
| Segment | ~~SHAWNERD-LOCKPORT_115_102~~ |

| Line | Lockport-Mortimer 111 |
|---|---|
| Segment | ~~LOCKPORT-TELGRAPH_115_111~~ |
| Segment | ~~TELGRAPH-SHELBY76_115_111~~ |
| Segment | ~~SHELBY76-SWEDEN___115_111~~ |
| Segment | SWEDEN__-MORTIMER_115_111 |

| Line | Lockport-Mortimer 113 |
|---|---|
| Segment | ~~LOCKPORT-SHELBY76_115_113~~ |
| Segment | ~~SWEDEN___SHELBY76_115_113~~ |
| Segment | SWEDEN__-MORTIMER_115_113 |

| Line | Lockport-Mortimer 114 |
|---|---|
| Segment | ~~LOCKPORT-TELGRAPH_115_114~~ |
| Segment | TELGRAPH-SHELBY76_115_114 |
| Segment | ~~MORTIMER-SHELBY76_115_114~~ |

| Line | Station 122-Border City 4-977 |
|---|---|
| Segment | ~~PANNELRG-FARMGTN___115_4-977~~ |
| Segment | FARMGTN_-BORDRCTY_115_4-977 |

| Line | Packard-WalckRd 129 |
|---|---|
| Segment | ~~PACKARD_ MILTR210_115_129~~ |
| Segment | MILTR210-SUMMIT97_115_129 |
| Segment | ~~SUMMIT97-WALCK_RD_115_129~~ |

| Line | Packard-Huntley 130 |
|---|---|
| Segment | ~~PACKARD_ MILTR210_115_130~~ |
| Segment | ~~MILTR210-SUMMIT97_115_130~~ |
| Segment | ~~SUMMIT97-BUFALO78_115_130~~ |
| Segment | BUFALO78-HUNTLEY__115_130 |

| Line | WalckRd-Huntley 133 |
|---|---|
| Segment | WALCK_RD-BUFALO78_115_133 |
| Segment | ~~BUFALO78-YOUNG214_115_133~~ |
| Segment | ~~YOUNG214-HUNTLEY___115_133~~ |

| Line | Niagara-Gardenville 180 |
|---|---|
| Segment | ~~NIAGARA_ LNGRD209_115_180~~ |
| Segment | LNGRD209-GARDNVLB_115_180 |

| Line | Packard-Gardenville 182 |
|---|---|
| Segment | ~~PACKARD_ LNGRD209_115_182~~ |
| Segment | ~~LNGRD209-GRISLD64_115_182~~ |
| Segment | ~~GRISLD64-NIAGB130_115_182~~ |
| Segment | NIAGB130-ECWABALP_115_182 |
| Segment | ~~ECWABALP-FRNKYONG_115_182~~ |
| Segment | ~~FRNKYONG-WALDENNG_115_182~~ |
| Segment | ~~WALDENNG-GARDNVLB_115_182~~ |

| Line | Packard-Erie St 181-922 |
|---|---|
| Segment | PACKARD_-NIAGB130_115_181-922 |
| Segment | ~~NIAGB130-ECWABALP_115_181-922~~ |
| Segment | ~~ECWABALP-FRNKYONG_115_181-922~~ |
| Segment | ~~FRNKYONG-CALSPAN___115_181-922~~ |
| Segment | ~~CALSPAN_ NBRDWYNG_115_181-922~~ |
| Segment | ~~NBRDWYNG-ERIE_ST___115_181-922~~ |

Note: Line segments shown in ~~strikeout~~ will be removed as secured in the market models.

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# Appendix B: Transmission Constraint Pricing Overview

# Transmission Constraint Pricing Logic

- **Enhancements to the transmission constraint pricing logic were implemented on June 20, 2017**
  - The pricing logic applicable is dependent on whether a transmission facility is assigned a non-zero constraint reliability margin (CRM) value or a zero value CRM
- **A graduated Transmission Shortage Cost mechanism applies to transmission elements assigned a non-zero CRM value**
  - The graduated Transmission Shortage Cost includes a two-step demand curve mechanism that can provide up to 20 MW of relief to help resolve constraints
    - Up to 5 MW of relief is available at a cost of $350 per MW
    - Up to an additional 15 MW of relief is available at a cost of $1,175 per MW
- **A single value ($4,000 per MW) shadow price capping mechanism applies to all transmission facilities, regardless of their CRM value**
- **If insufficient resource capacity is available to fully resolve a constraint, "relaxation" is applied.**
  - To determine the shadow cost for the transmission constraint, the applicable limit for the facility is increased to a value equal to the flow that can be achieved on the constraint by the available resources (including the 20 MW of relief from the demand curve mechanism, if applicable), plus 0.2 MW

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