



Item 9: Real-Time Market Price Correction for Certain Intervals on Operating Day July 18, 2018

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ERCOT Public

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Issue/ERCOT Recommendation

On Operating Day July 18, 2018 prices in the Real-Time Market (RTM) were significantly affected by a Data Input error, and require price correction under ERCOT Protocol Section 6.3(6).

ERCOT recommends that the Board (i) make a determination that certain prices for Settlement Intervals ending 1630 – 1830 on July 18, 2018 were significantly affected by a Data Input error, and (ii) authorize ERCOT to correct such prices.

Summary

- On July 19, 2018, ERCOT determined that two contingency definitions were incorrect for two double-circuit contingencies: DCNSLHS8 and DLHSCNR8.
- The contingency definitions contained excess and incorrect elements when they were loaded into ERCOT systems, which ERCOT considers to be a Data Input error under Protocol Section 6.3(4)(a).
- This Data Input error resulted in incorrect Real-Time prices for Settlement Intervals ending 1630 – 1830 on Operating Day (OD) July 18, 2018.
- Although ERCOT identified the issue and potential need for price correction before prices for the OD at issue became final, ERCOT was unable to determine the correct prices for publication prior to the deadline under Protocol Section 6.3(4) - i.e., 1600 on July 20, 2018.
- On July 20, 2018, ERCOT posted a Market Notice informing Market Participants that ERCOT would be seeking Board approval of a price correction for the applicable Settlement Intervals on OD July 18, 2018.
- Note: The same error also resulted in incorrect Day-Ahead Market (DAM) prices for certain intervals on Operating Day July 20, 2018. However, before the prices became final at 1000 on July 24, 2018, ERCOT was able to determine the correct prices, and post the corrected prices before they became final. No action is being requested by ERCOT with respect to DAM prices.

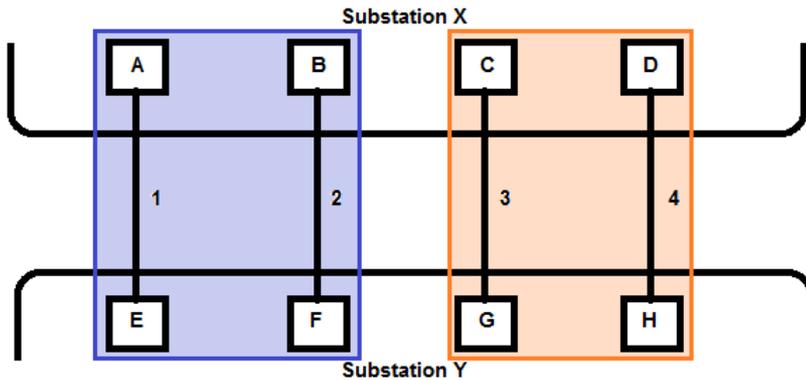
Contingency Definitions

- The two double-circuit contingencies impacted by this issue were DCNSLHS8 and DLHSCNR8. Only DCNSLHS8 was part of a binding transmission constraint. The constrained element was the 138 kV transmission line between Centerville Road and Lake Hubbard SES (3270__B).
- The incorrect contingency definitions resulted from (a) a model change request to redefine the double-circuits, and (b) a data error caused by ERCOT's contingency definition tool that resulted in a Data Input error for input into ERCOT's Energy and Market Management Systems (EMS and MMS). ERCOT's Data Input error thereby resulted in the addition of incorrect equipment in the two contingency definitions.

Hypothetical Scenario

Original Model Data

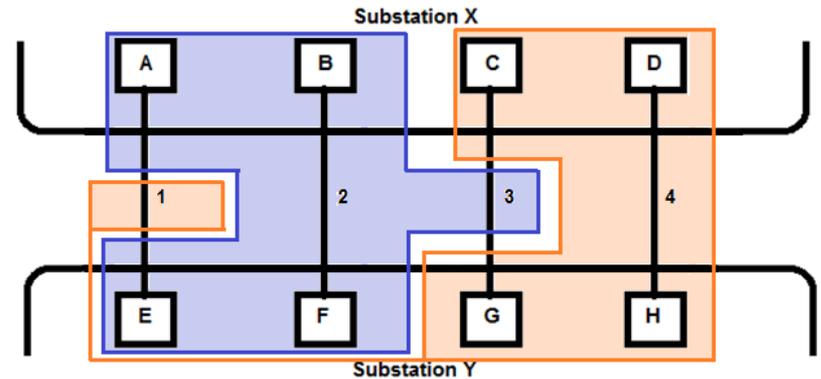
Double Circuit Contingency 1 contained the following elements: A/1/E & B/2/F
Double Circuit Contingency 2 contained the following elements: C/3/G & D/4/H



Change Request

(ERCOT received a request to change the lines that shared common towers, which resulted in errors in the contingency definitions.)

Double Circuit Contingency 1 contained the following elements: A/3/E & B/2/F
Double Circuit Contingency 2 contained the following elements: C/1/G & D/4/H

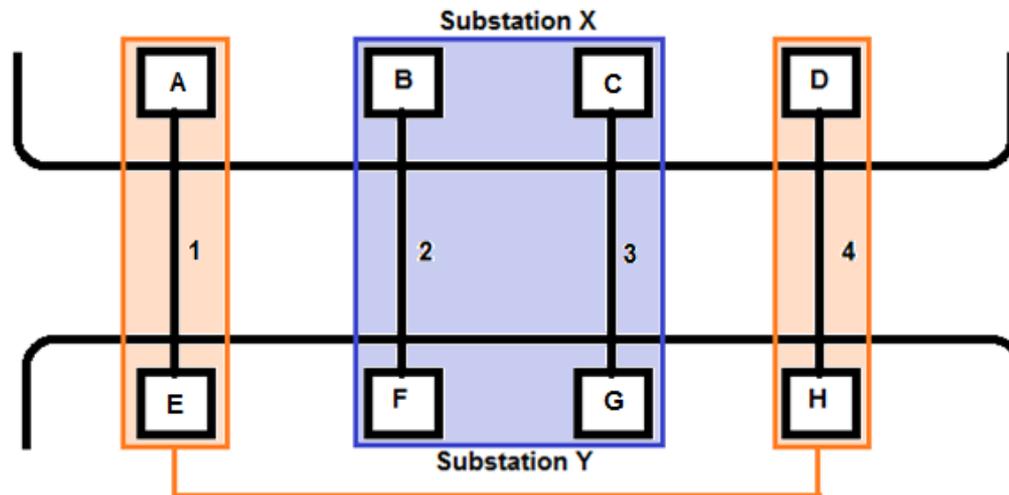


Hypothetical Scenario & Mitigation Efforts

Correct Contingency Definitions

Double-Circuit Contingency 1 contains the following elements: **C/3/G** & **B/2/F**

Double-Circuit Contingency 2 contains the following elements: **A/1/E** & **D/4/H**



Mitigation Efforts

- The two double-circuit contingency definitions were corrected with updated model data in all ERCOT systems.
- Going forward, ERCOT will update its models and systems following the receipt of changes that may impact double-circuit contingency definitions by deleting any old definitions, and rebuilding the contingency definition/s.
- Moreover, ERCOT has added a validation check to all double-circuit contingency definitions to ensure that a similar error will not be introduced in other contingency definitions.

Real-Time Pricing Impacts

- 25 SCED Intervals; 9 Settlement Intervals
 - **LMP Impacts:** Average change across all Settlement Points is a decrease of ~\$11/MWh; Largest increase in price is ~\$1,130/MWh; Largest decrease in price is ~\$425/MWh
 - **SPP Impacts:** Average change in 15-minute SPPs is a decrease of ~\$9/MWh; Largest increase in price is ~\$740/MWh; Largest decrease in price is ~\$162/MWh

LMPs	
Number of Resource-SCED intervals with higher LMPs	1,128
Largest LMP increase	\$1,129.73/MWh
Number of Resource-SCED intervals with lower LMPs	10,971
Largest LMP decrease	\$424.83/MWh
Average change in LMP	-\$10.67/MWh

SPPs	
Settlement Intervals with higher SPPs	378
Largest SPP increase	\$739.50/MWh
Settlement Point Intervals with lower SPPs	4,870
Largest SPP decrease	\$161.92/MWh
Average change in SPP	-\$8.78/MWh
Hub SPP impact	-\$69.96/MWh to \$0.01/MWh
Load Zone SPP impact	-\$73.35/MWh to \$3.73/MWh

Base Points	
Resource-SCED intervals with higher BPs	56
Unique Resources with at least one higher BP	13
Largest BP increase	30.4 MW
Resource-SCED intervals with lower BPs	96
Unique Resources with at least one lower BP	39
Largest BP decrease	23 MW

Price Adders	
Increase in Online Reserve Price Adder (RTORPA)	\$0.02/MWh to \$10.80/MWh
Increase in Offline Reserve Price Adder (RTOFFPA)	\$0.01/MWh to \$5.09/MWh
Reliability Deployment Price Adder (RTORDPA)	No change

Real-Time Pricing Impacts - cont.

Resource Node LMP Impact for Interval 1630 on July 18, 2018

- Prices most impacted were those near the constraint with the incorrect contingency.
- The shadow prices for other transmission constraints also changed with the erroneous constraint removed.

