Hypothetical Study for High Gas Unit EOCs

Congestion Management Working Group

Market Analysis & Validation

8/16/2021

Background

- Stakeholders requested an analysis for a hypothetical scenario:
  - Grid is in a relatively tight condition;
  - Gas price goes to extreme high value;
  - All gas units have to offer at SWCAP.

- How would SCED react under this scenario:
  - Will SCED be able to solve?
  - What does the solution look like?
  - What are the impact on Resource Base Points and transmission constraints?
  - Will gas generation be prevented from being dispatched due to congestion?

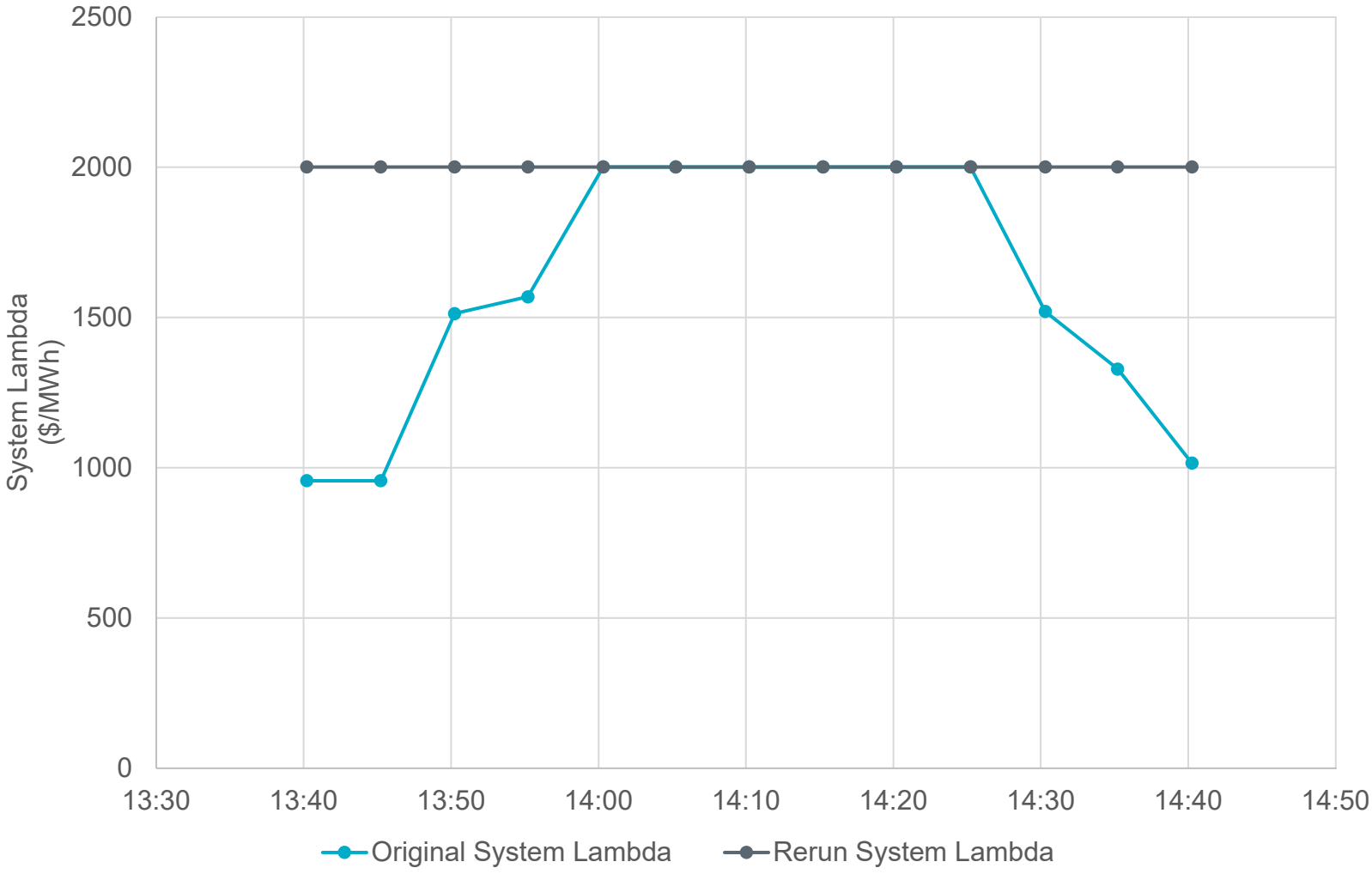
Methodology

- Analyze SCED data on June 14th, 2021 (from 13:40 to 14:40, which includes the intervals when system lambda reached $2,001/MWh)
- Change all the gas units Energy Offer Curve to system-wide offer cap ($2,000/MWh)
- Rerun SCED cases sequentially – The output from previous SCED rerun result will be the input for the following SCED

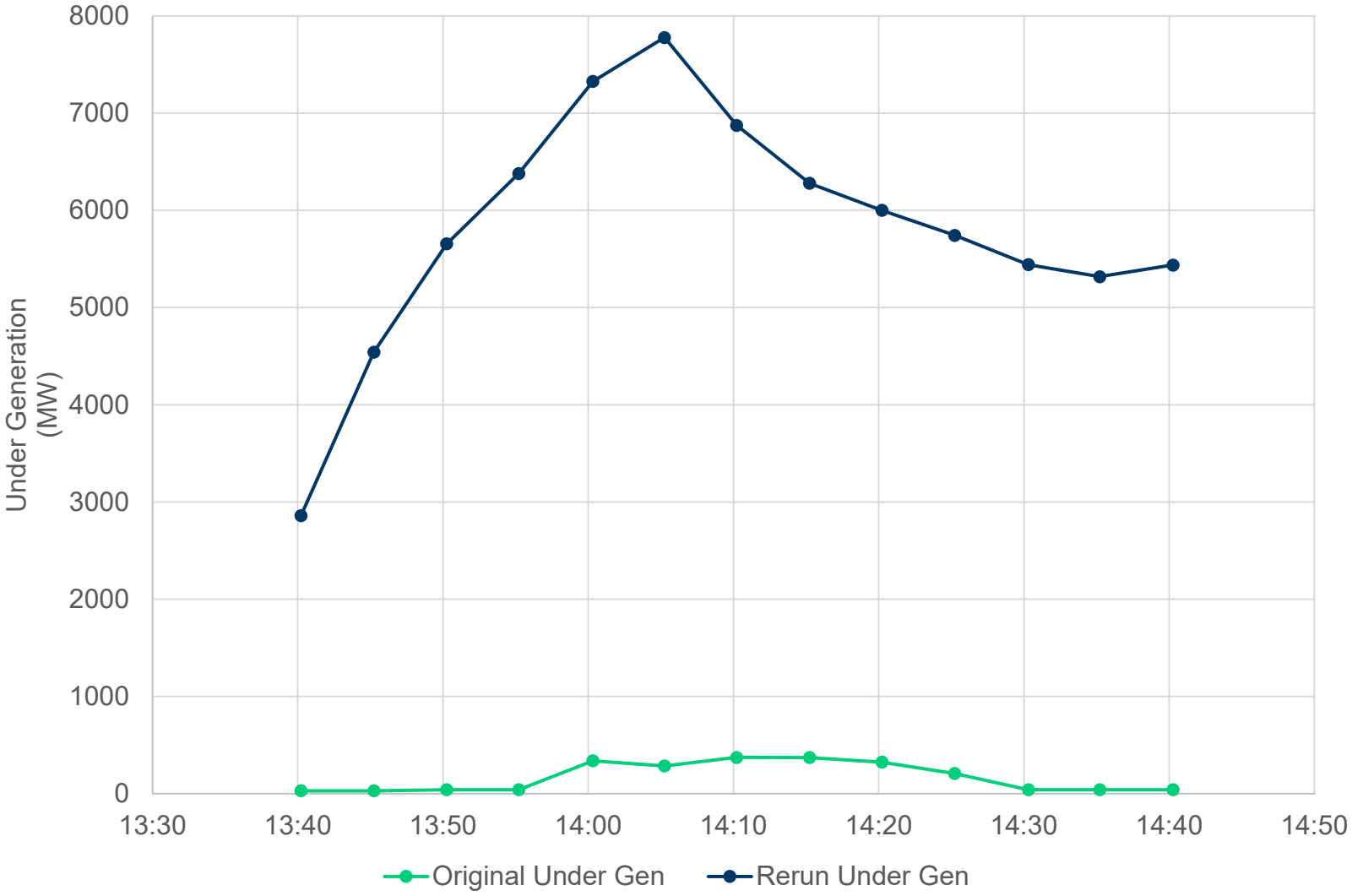
Study Result Summary

- SCED can always solve under the hypothetical scenario:
  - With large amount of power balance violation.
  - May never happen in reality because we would need actions to manage the power balance violation.
- Transmission Constraints violation would be reduced.
- Most Resource would have lower Base Points.

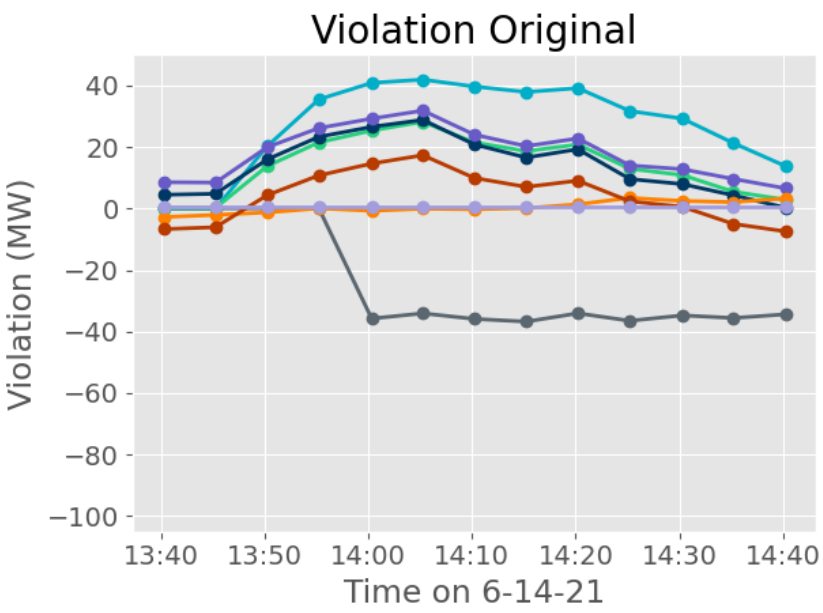
Study Result – System Lambda

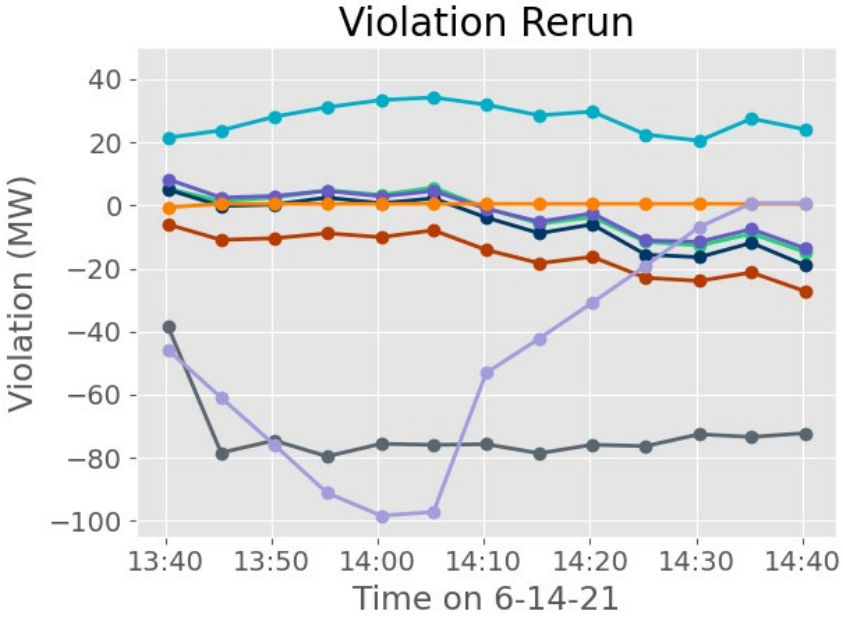


Study Result – Under Generation



Study Result – Transmission Constraint Violation MW

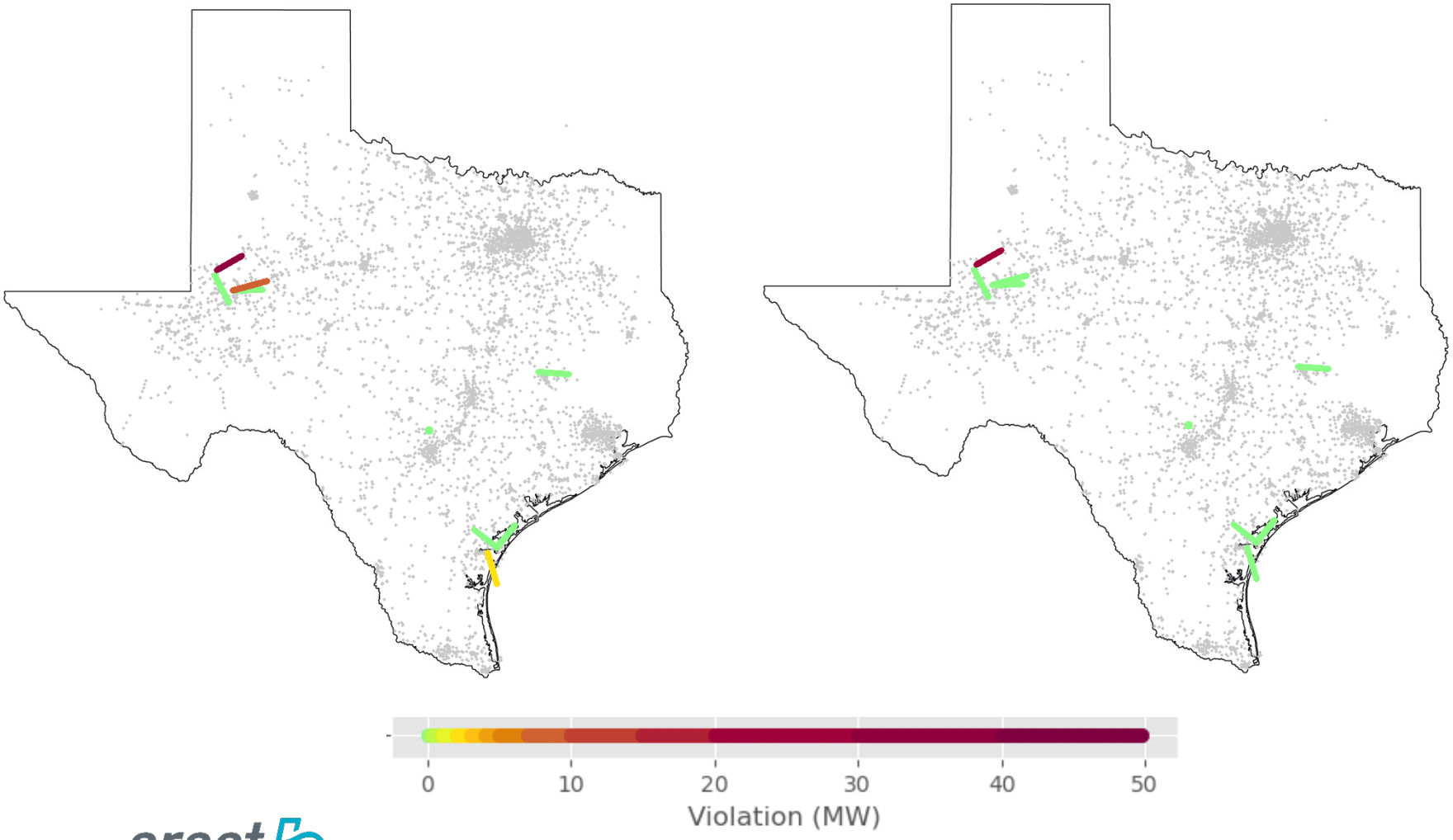




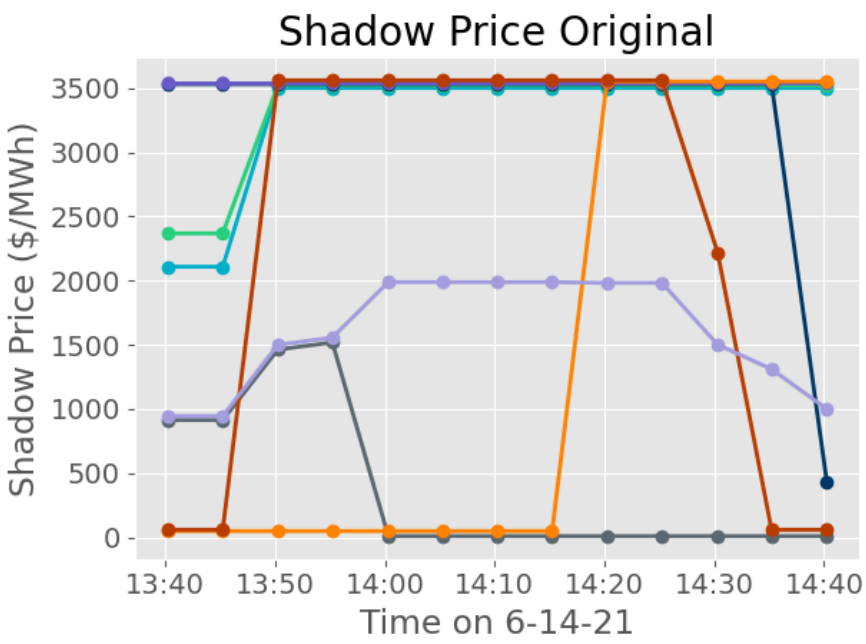
Study Result – Transmission Constraint Violation MW

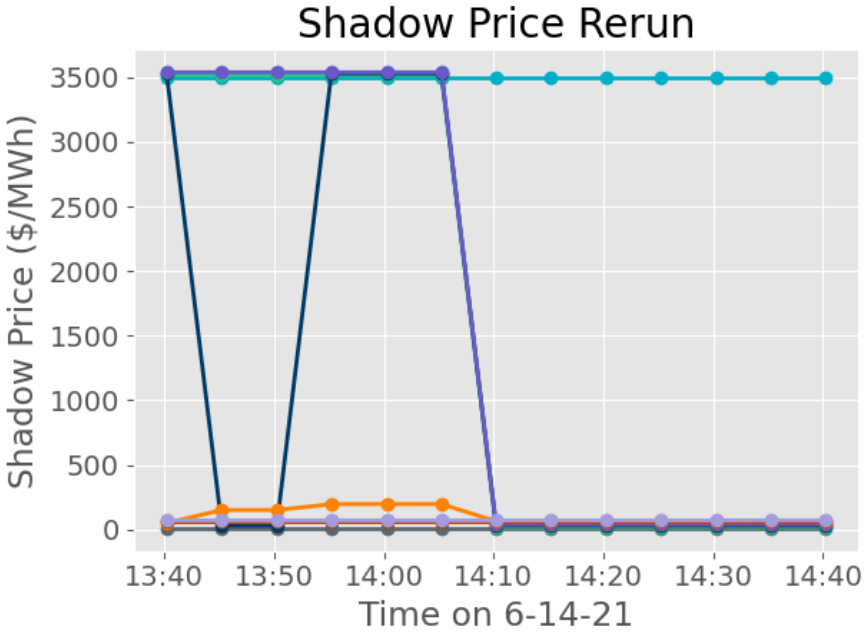
14:25 Original Violation

14:25 Rerun Violation



Study Result – Transmission Constraint Shadow Prices



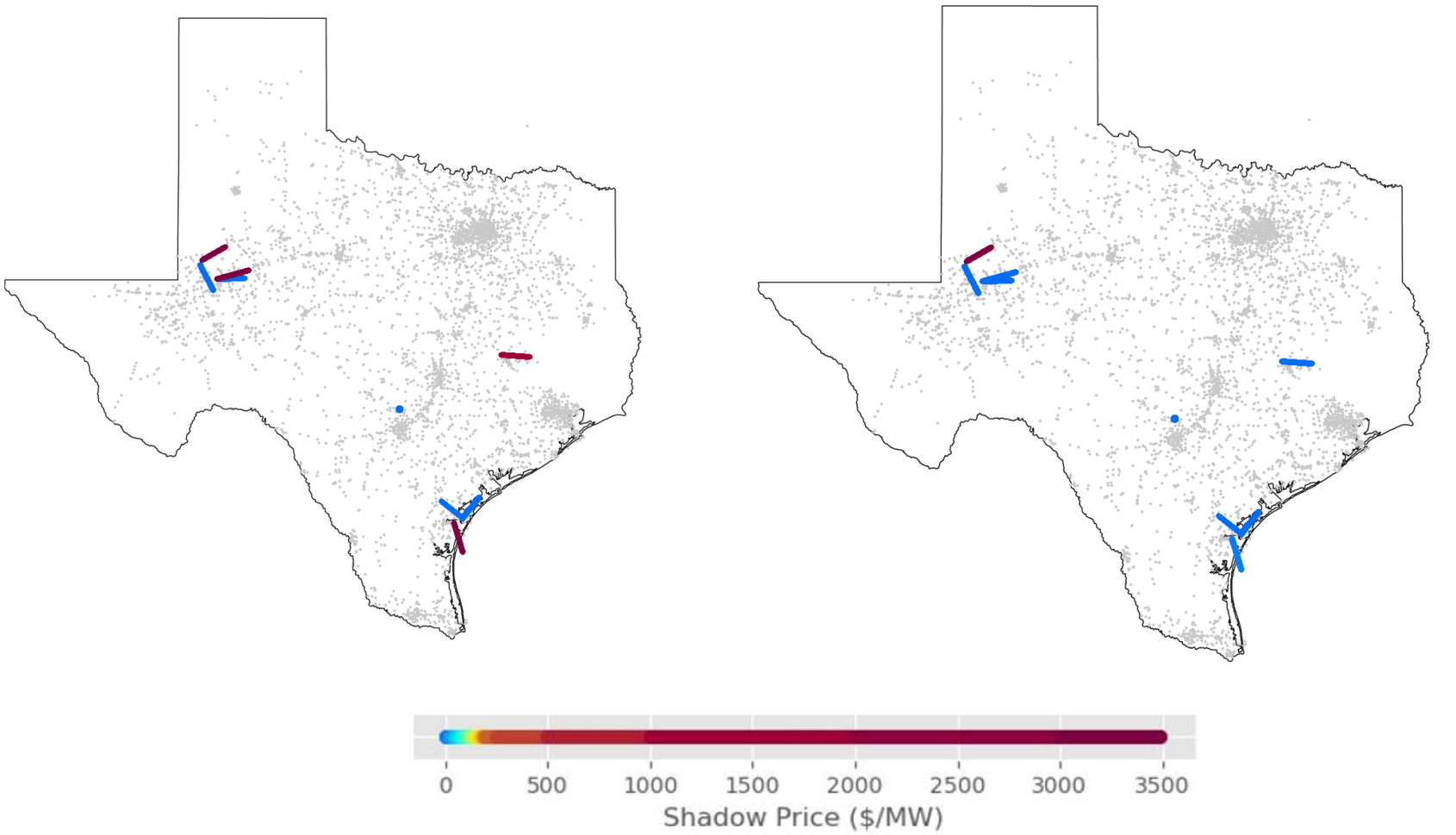


SGDNTEL5: 6094__D
SMDLMOS5: TALLCITY_TELPR_1
XMDL58: TALLCITY_TELPR_1
DMGSLNG5: TALLCITY_TELPR_1
SLGEI_D8: I_DUPS_LGE1_1
SSTAMDL8: TALLCITY_TELPR_1
DHWIND89: MORRIS_NUECES1_1
XDAN89: TAB_DANS_1

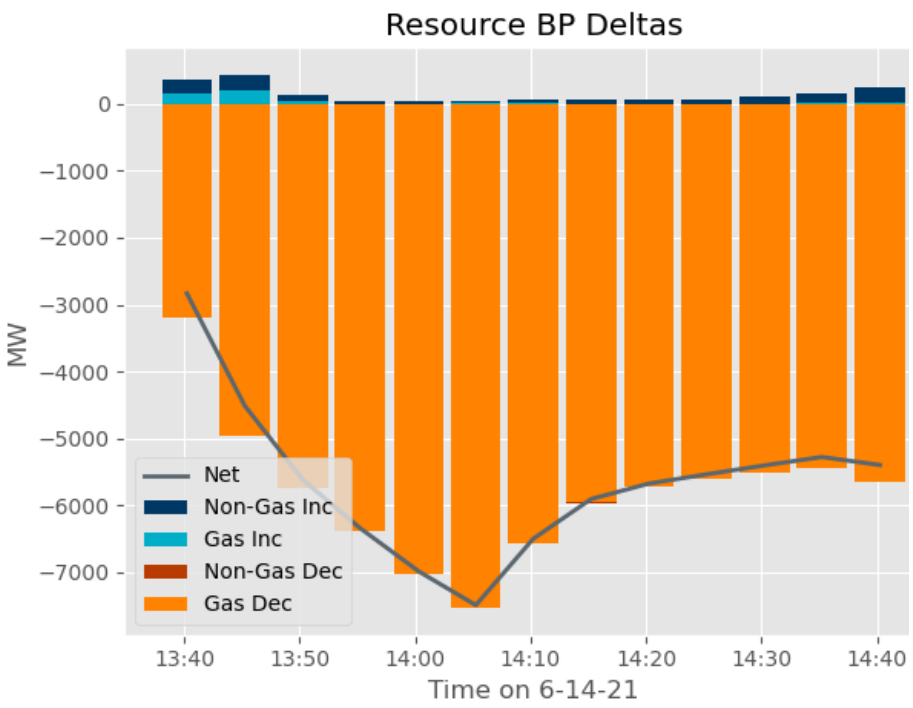
Study Result – Transmission Constraint Shadow Prices

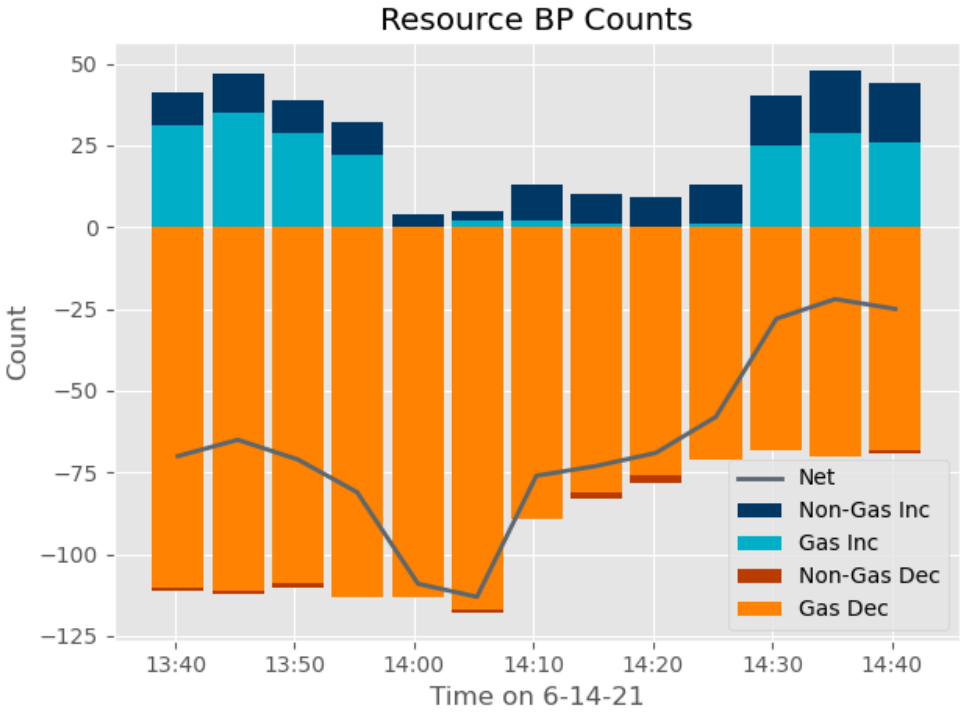
14:25 Original Shadow Price

14:25 Rerun Shadow Price

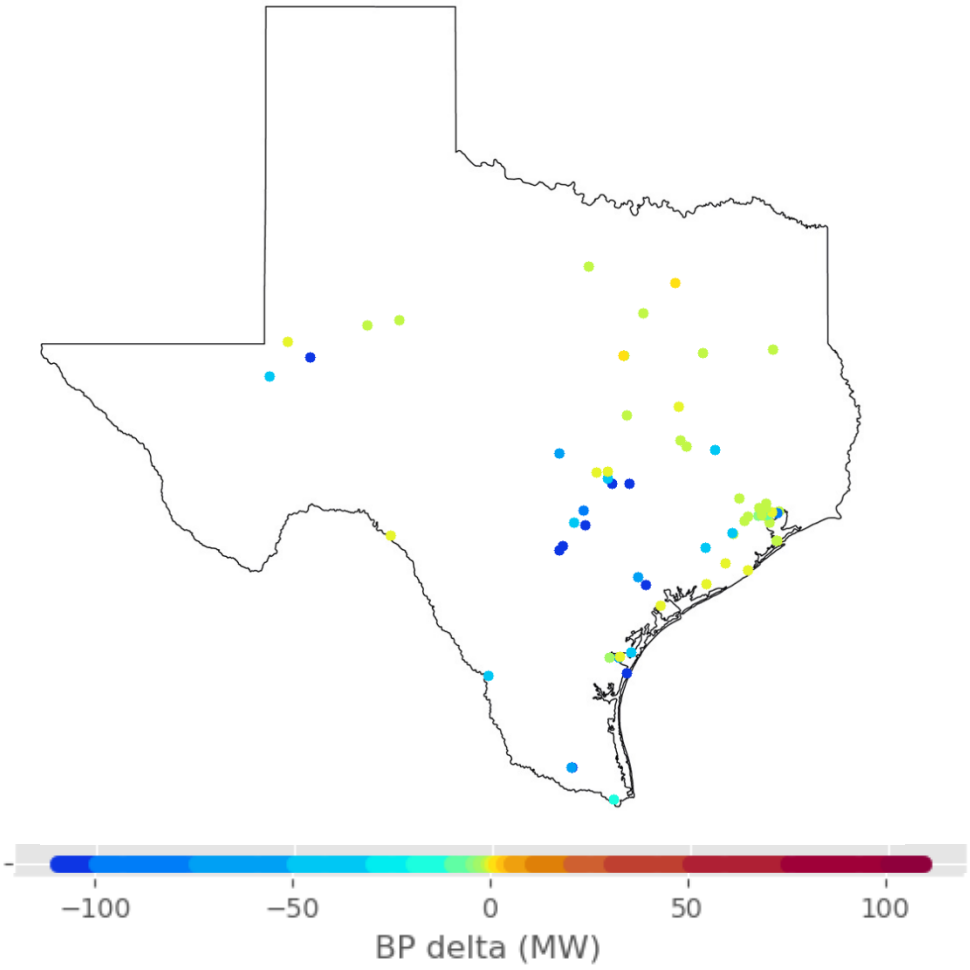


Study Result – Base Points changes





Study Result - Base Point Change on ERCOT Map (14:25)



Questions