

## DOCKETED

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# California Natural Gas Market Transformation: Thoughts and Recommendations

Joint presentation by

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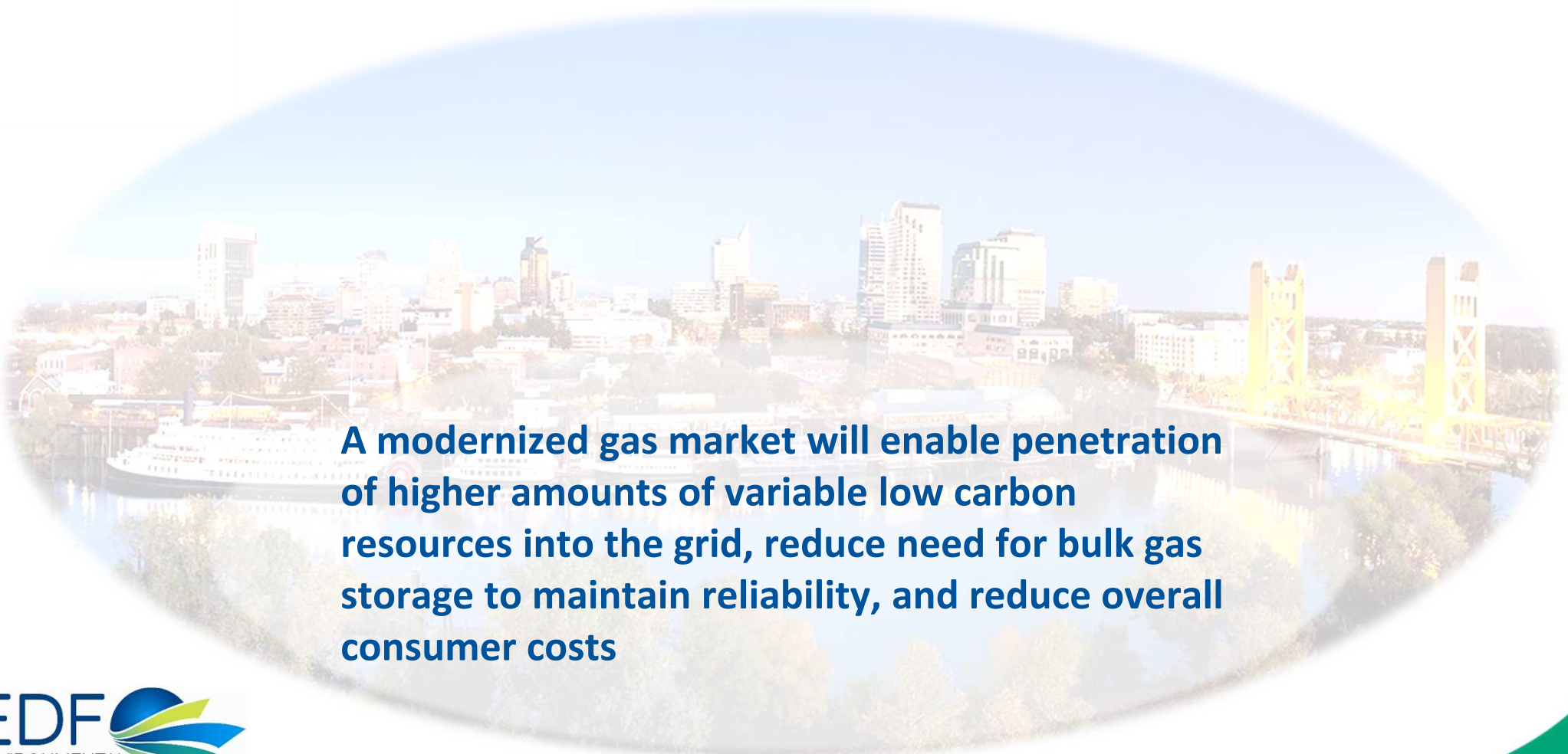


# Vision



**To transform the CA natural gas business into a market that responds to price and operational signals on a sub-day basis to support, coordinate, inform and be informed by the sub-hour CA electric market.**

# Benefit



**A modernized gas market will enable penetration of higher amounts of variable low carbon resources into the grid, reduce need for bulk gas storage to maintain reliability, and reduce overall consumer costs**

## The Path Forward

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## Identify Deficiencies and Barriers

Major entities in the CA natural gas market have different rules that apply for natural gas forecasting, procurement and market monitoring/control – these differences do not reflect operational requirements but instead arise from their separate “positions” in the market

Market conditions that exist today have created an inhospitable environment for clean energy resources capable of supplying flexible services to engage in, and receive full value of, their investments

Historically, bulk natural gas storage has provided California a cushion that has allowed the state to avoid taking on serious gas-electric energy policy coordination, that historic cushion has changed.

## Establish Rules

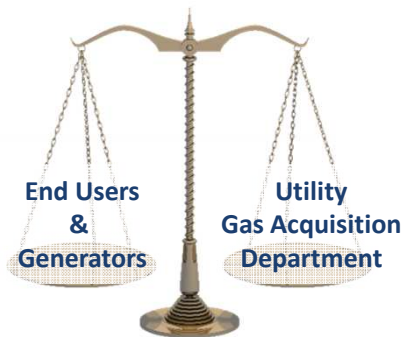
Start by establishing rules that expect and require that all users of the CA natural gas infrastructure play by the same rules, and utilize modern day technology for system operation.



Rules should include:

- Seller and all Shipper operation under contracts with the System Operator.
- Same requirements on gas supply department of the gas utilities for forecasting, scheduling, and balancing

# Implement



1. Have all users of the gas systems schedule flowing gas (from in-state and interstate sources) equal to their daily burn +/- 5% every day



2. Maintain Summer gas storage inventory levels at between 70% and 80% of working gas levels

3. Institute Winter gas storage refills when inventory drops below 60% (or other prudent level) and demand drops such that interstate capacity is available to refill to 70% (or other prudent level)

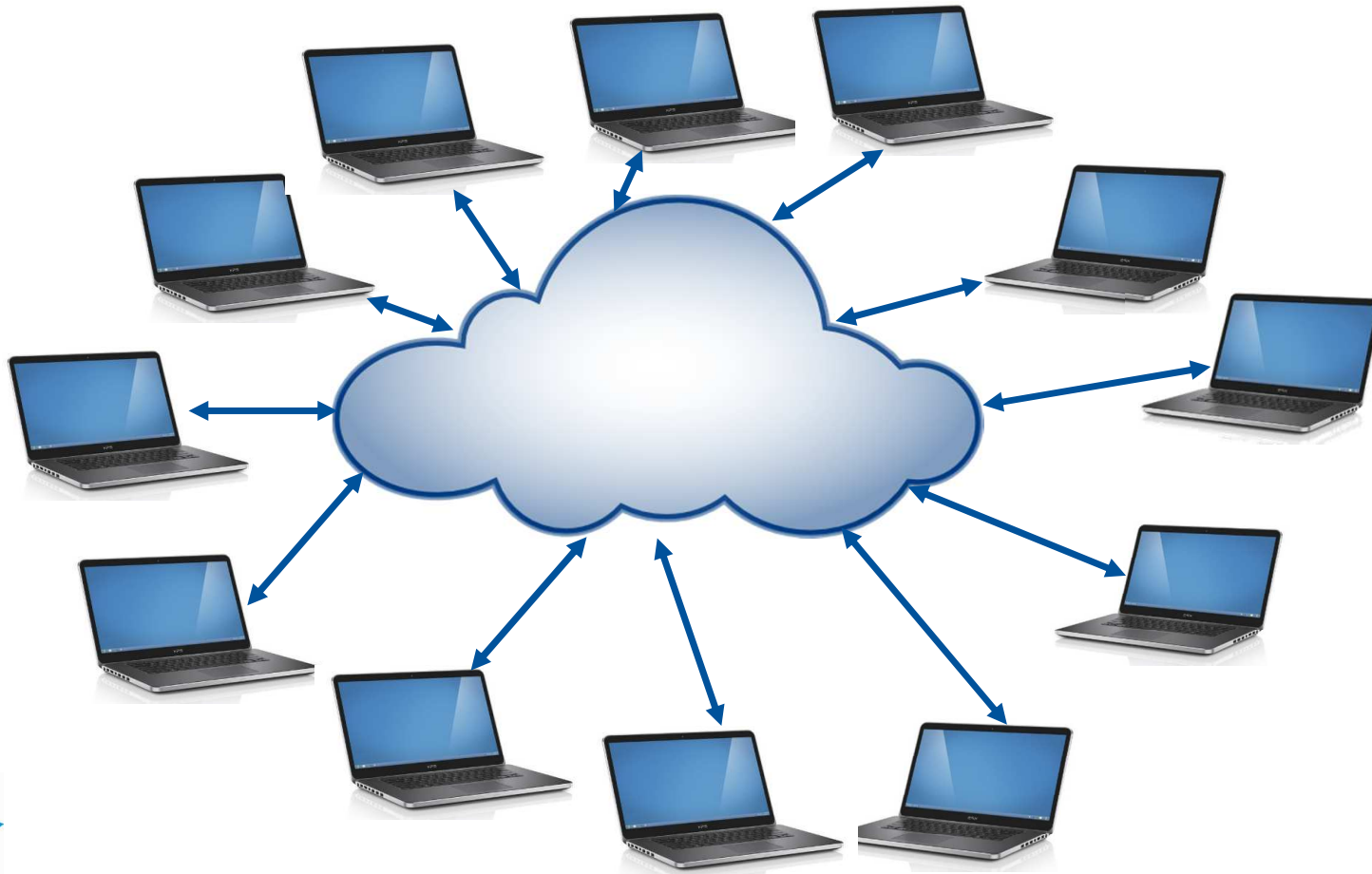


# Automate

Next have the gas system operators automate their imbalance trading mechanisms as a Market Operator so that the imbalance trading mechanism can operate more frequently; beginning with monthly imbalances and proceeding to daily and sub-day.



# Next, Establish the Proposed Imbalance Market



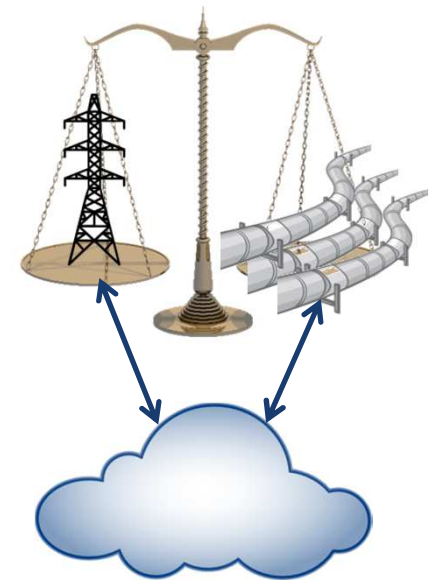
## The Imbalance Market

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## Purpose of Imbalance Market

The Imbalance Market will:

- Facilitate more efficient gas market operations within the SoCal Operating Area
  - Possible California-wide applicability as well
- The Market Operator would provide an intraday balancing market to address within day variances of demand vs. supply
- Provide intraday price formation and price discovery in the gas market to compliment the within day/real-time price formation and price discovery in the electric market
  - Provide known and knowable prices for generators to show CAISO



## Purpose of Imbalance Market

In addition, the Imbalance Market would:

- Empower and unleash market forces to address reliability of both systems on a permanent self-correcting basis.
- Promote efficient market compatible investments on both the gas and electric side that acknowledge the real costs and benefits to market participants of operating in a reliable and efficient manner.

## Some Particulars

- Market Operator/System Operator would “run” the market, clear trades, post prices and volumes, and settle (i.e., sell or buy) imbalances that were not cleared by trades.
- The existing monthly cash-out price references and bands (tiers) are readily adaptable to daily and eventually sub-daily and would be used by the Market Operator for normal operations.
- The existing OFO cash-out prices and bands (tiers) are also readily adaptable to daily and eventually sub-daily and would be used by the Market Operator for strained operations.

## Some Particulars – Cont'd

- The Imbalance trading point is a “paper pool” set-up and administered by the Market Operator/System Operator (much like the implicit “point” used to settle monthly imbalance trades).
- The Market Operator/System Operator can also use the imbalance paper pool to buy or sell gas to maintain storage inventory within the optimum bands set forth above.
- The Market Operator/ System Operator would continue to assess delivery charges on gas delivered to end-use locations

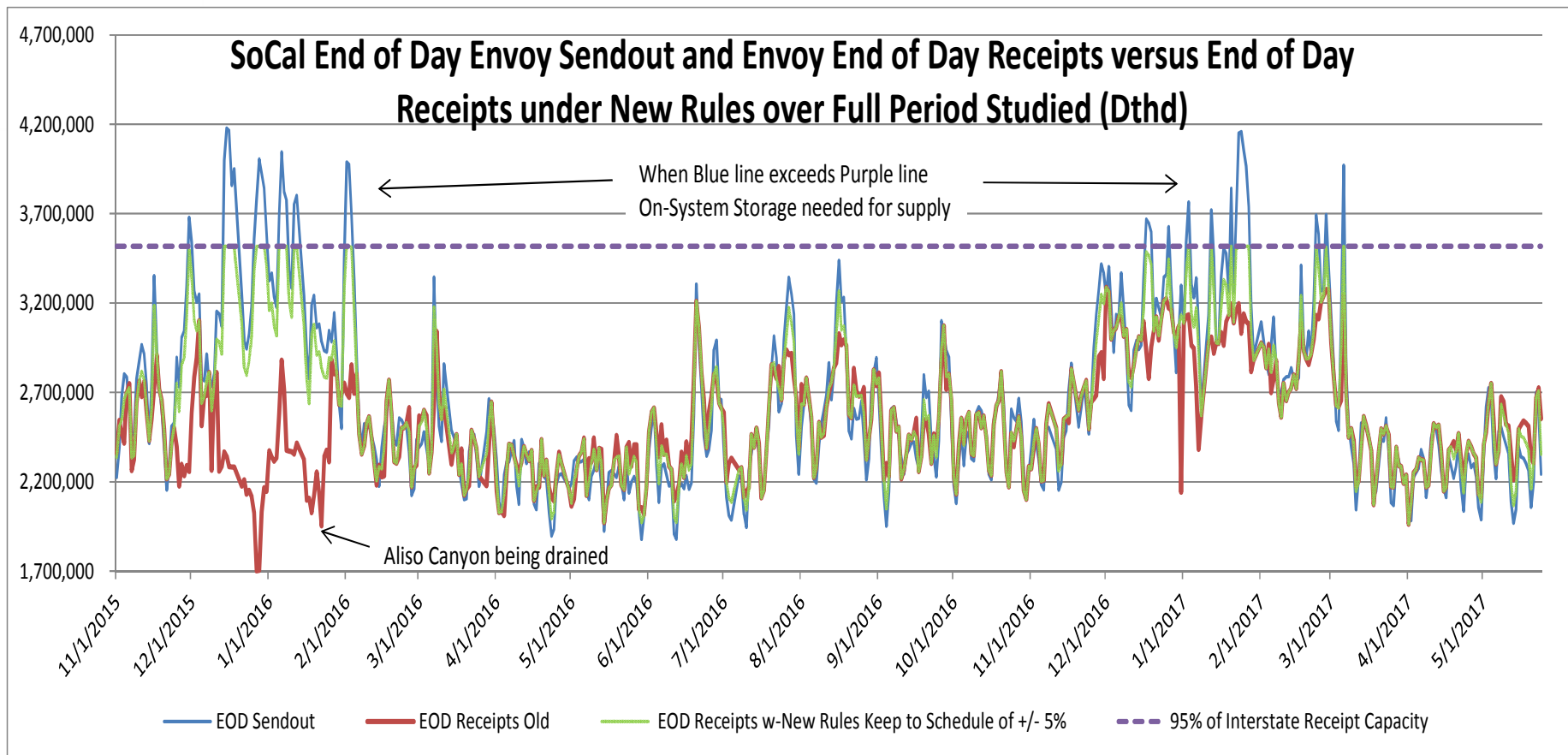
## Establish Rules – Examples of Results

Start by establishing rules that expect and require that all users of the CA natural gas infrastructure play by the same rules. All Sellers and all Shippers operate under contracts with the System Operator. This includes the gas supply department of the gas utilities.

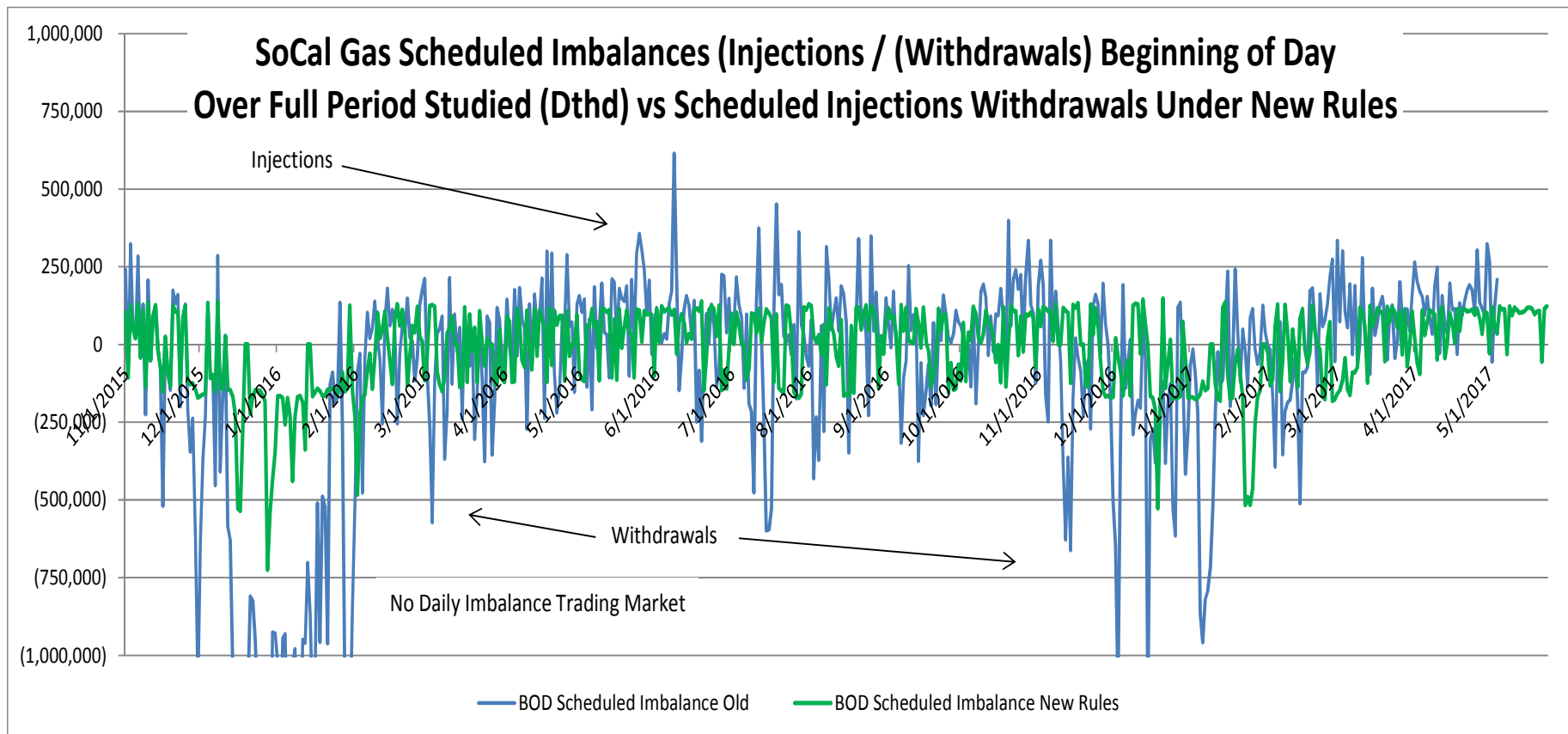
Had this rule been in effect, the charts on the following slides indicate how different the SoCal market would have operated during the indicated periods



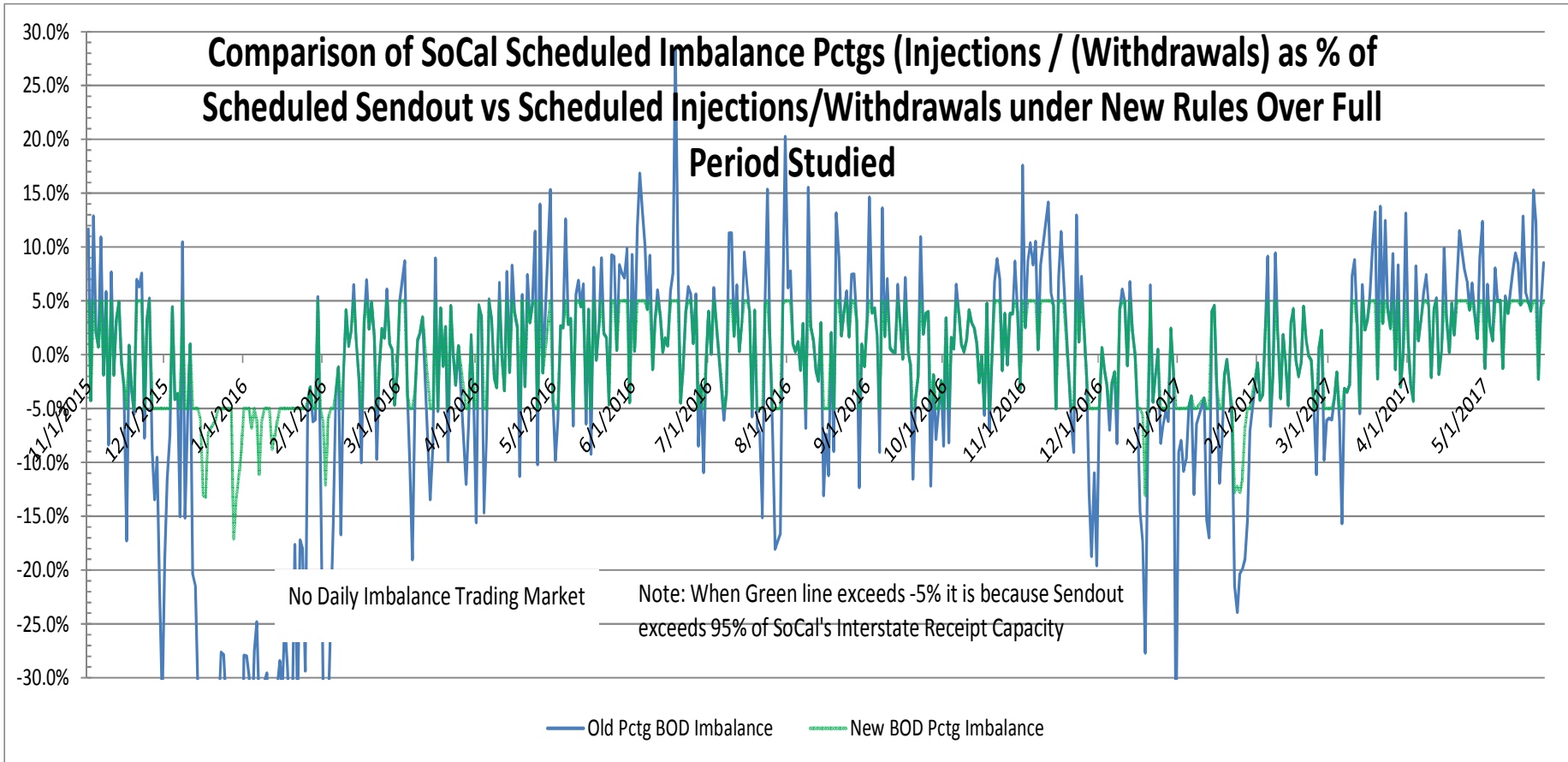
# Establish Rules – Examples of Results



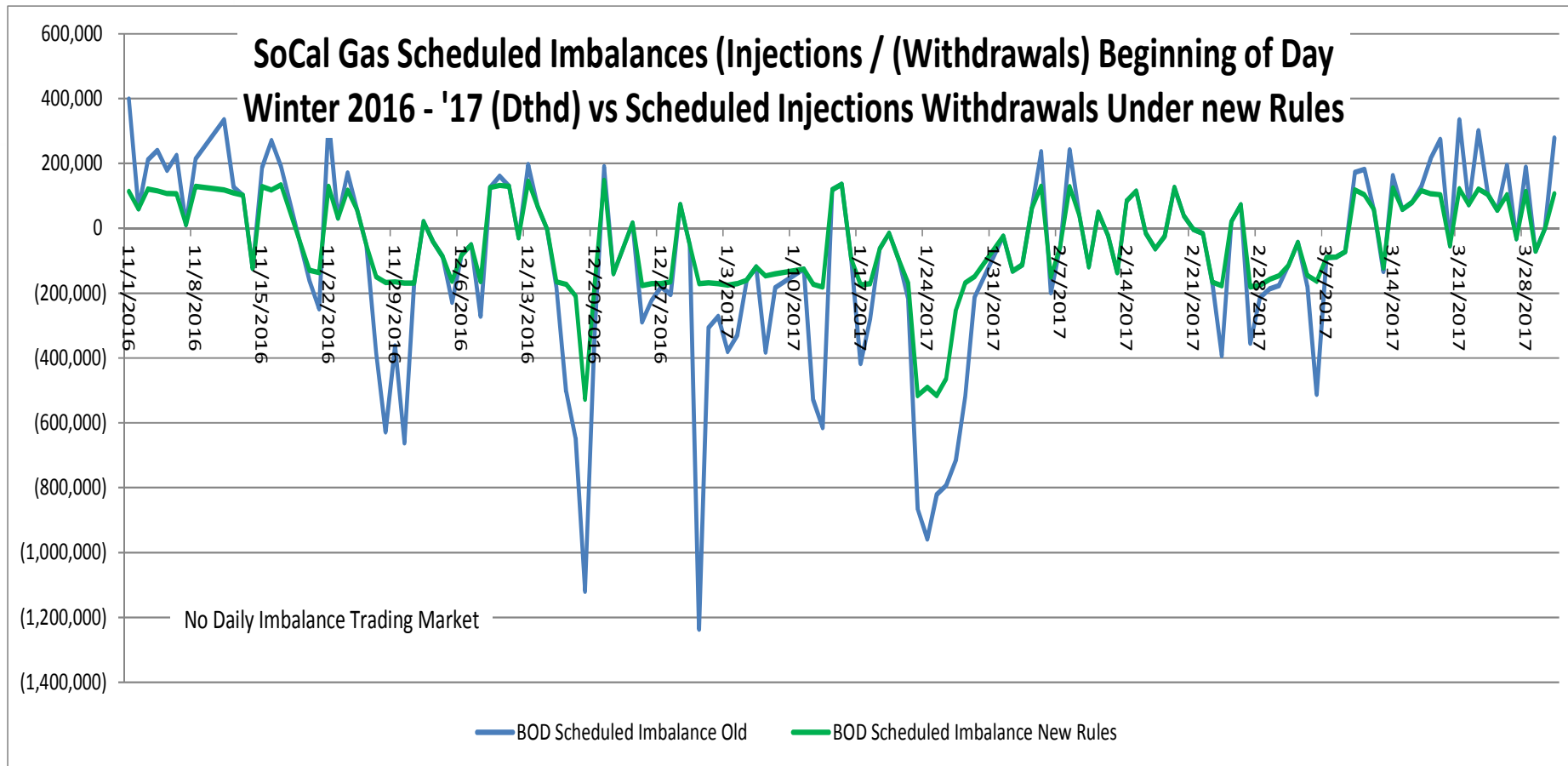
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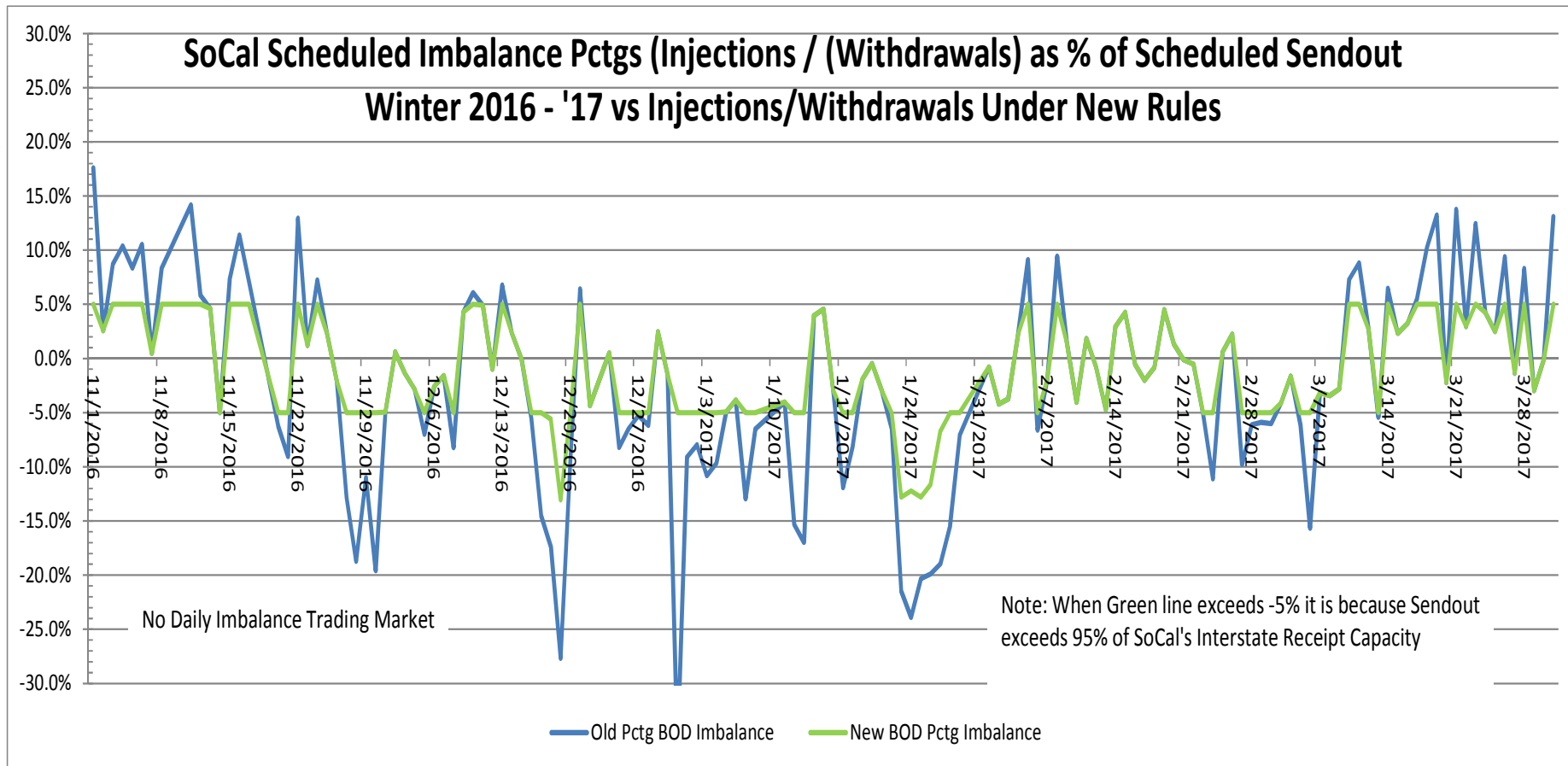
# Establish Rules – Examples of Results



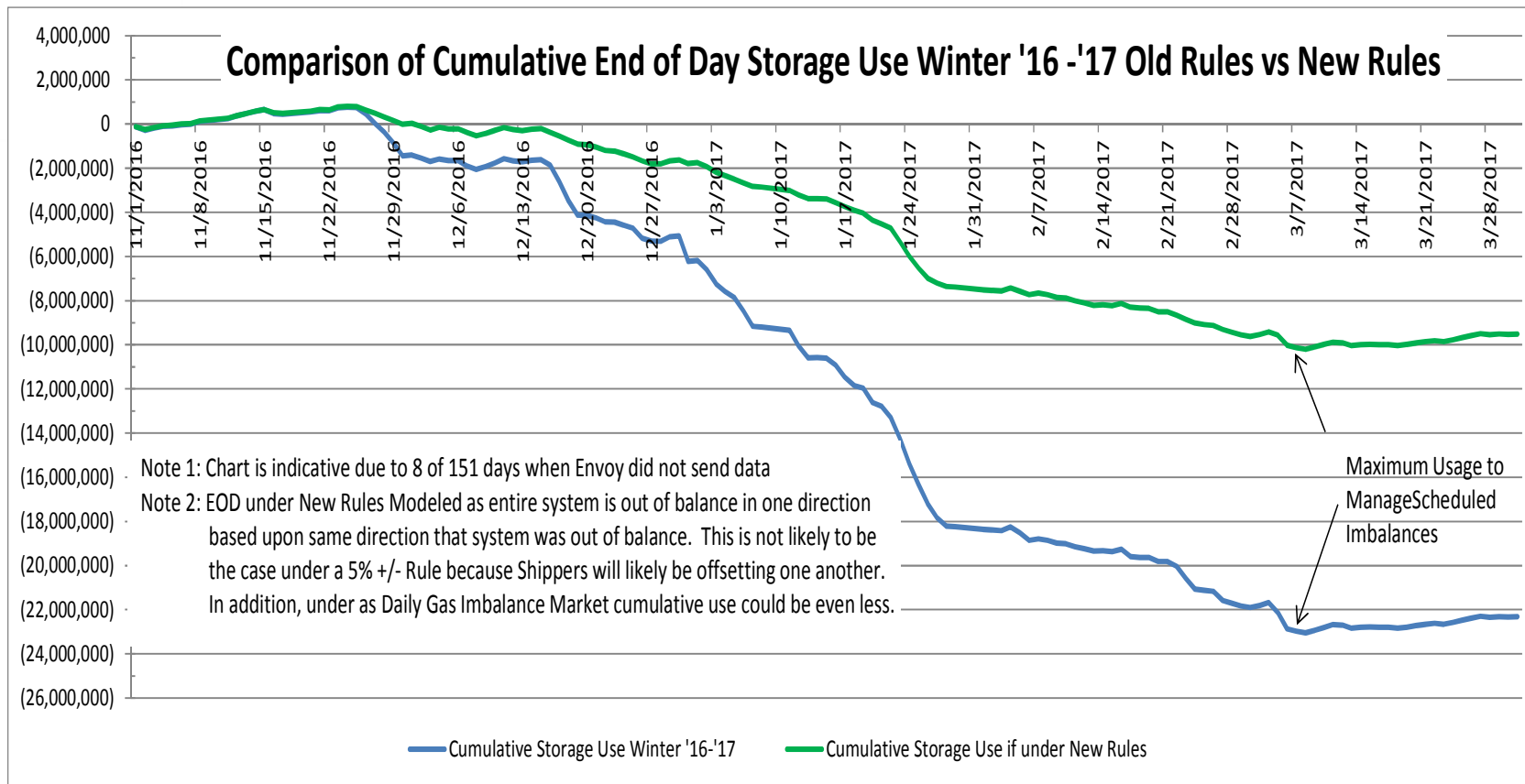
# Establish Rules – Examples of Results



# Establish Rules – Examples of Results



# Establish Rules – Examples of Results



# Questions?

## Thank you

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## Thank you

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