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Transcontinental Gas Pipe Line Company, LLC
RP18-314-000 Technical Conference
March 28, 2018

NYSE: WMB
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AGENDA

- Introductions
- Background Information
- No-Notice Priorities
- Operational Challenges Created by HBLV No-Notice
- Transportation Imbalances New St 95 Pool
- Wrap-Up
- Conclusion
- Questions?

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Background Information

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Development of Proposed Tariff Changes

- Posted original draft tariff proposal on Transco's Info Postings October 2014
  - Proposed GT&C sections 57-60 that clarified existing tariff and centralized priority of service information
- Webinars held in December 2014
- FAQ webinars held in January 2015
- Solicited customer feedback throughout 2015 and 2016
- Operational challenges on the pipeline increase, prompting assessment of existing tariff and business practices

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Development of Proposed Tariff Changes

> Tariff changes made in 2015 and 2016 in an effort to mitigate challenges:

- OFO and OC Penalties RP15-1203: changes to the price indices used in the calculation of penalties related to Operational Controls and Operational Flow Orders. Effective 10/1/15

- Cash Out Reference Spot Prices RP15-1212: changes to the commodity price indices used to determine Transco's cash out pricing. Effective 10/1/15

- Revisions to Operational Impact Areas RP16-22: increases the number of Operational Impact Areas on Transco's system from two to four. Effective 11/1/15

- Revisions to Calculation of Cash Out Imbalance Percentage and OC/OFO Imbalances RP16-1249: revises the calculation of shippers' imbalance percentages in the cash out process and shippers' imbalance quantities subject to penalty under the provisions of certain Operational Controls and Operational Flow Orders. Effective 11/1/16

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Development of Proposed Tariff Changes

- Customer feedback in 2015 and 2016 leads to a revision of the draft proposal
- Updated draft tariff proposal posted on Transco's Info Postings February 2017
- Webinars held and video offered for those unable to attend live webinars – February through March 2017
- FAQs posted for common questions – April 2017
- Visited over 50 customers with numerous follow up meetings – April 2017 through December 2017
- Following feedback from certain shippers concerned about limited sources of supply in OIA 2, updated the pro forma tariff to include a new Station 95 Pool in Zone 4/OIA 2

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Development of Proposed Tariff Changes

- Filed pro forma tariff on January 2, 2018
  - Filing explains that the revisions generally do not change Transco's current priority of service, they simply restate or consolidate existing provisions or, in some cases update or add more detail to existing provisions. Filing identified and discussed any changes in a service priority or business practice
  - Majority of shippers did not comment on or protest the filing, but of approximately 40 shippers that intervened, a small subset of only 4 protested with a limited focus on essentially the same issues
- Protesters main concern is directed at:
  - Transco's elimination of its business practice of allowing shippers to designate a receipt point for high burn no-notice transactions;
  - Attributing a "presumed" transportation path for those high burn no-notice transactions; and
  - The effect of that business change on no-notice service and imbalance resolution

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No-Notice Priorities

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Forms of No-Notice

- Segmenting capacity with scheduled balanced nominations do not contribute to operational challenges as there is a confirmed supply source
- Two forms of no-notice:
  - Supplier "swing" no-notice: Shipper uses supply such as bundled storage associated with a no-notice request
    - Transco offers Swing Supplier options for a shipper to link a high burn or low burn request with a transportation transaction from a source of supply. The options are:
      - Link Transportation and Unbundled Storage
      - Swing Service Delivery Point (SSDP) operator agrees to "take the swing" of another SSDP
      - SSDP operator agrees to "take the swing" for a Virtual Measurement Point
      - A pipeline interconnect operator and a SSDP operator agree that the SSDP operator agrees to "take the swing" for the interconnect
    - *These types of transactions have less impact on operations because a physical source of supply backs the request*
  - High Burn Limit Value (HBLV) no-notice: Shipper takes high burn no-notice request without a supply of gas at the SSDP
    - ***These types of transactions create operational challenges since gas has to be provided by the pipe at those delivery points***

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Priorities of No-Notice

No-Notice Swing Priorities on Transco

Current

Tariff	Historical Practice (Driven by Operational Availablity)
Traditional	Primary (Traditional/Non-Traditional)
	Non-Secondary Reverse Path (NSRP); added on Mobile Bay 5/2010, Leidy 4/2012 and Mainline 8/2013
	Secondary
IT	IT

Future

Tariff	Proposed Practice (Supported by Filing)
Traditional	Traditional
Non-Traditional	Non-Traditional
Secondary	Secondary
IT	IT

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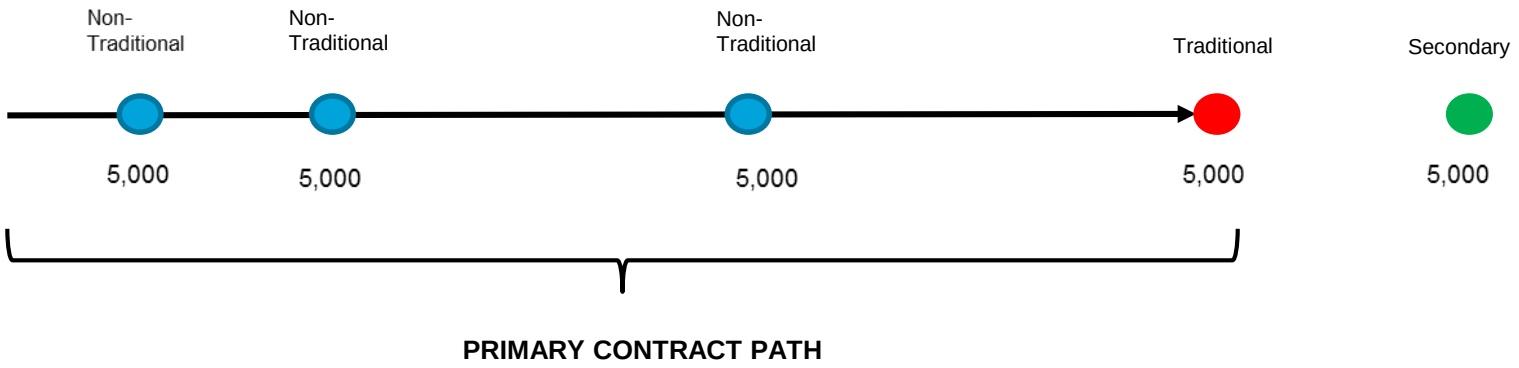
Points Where No-Notice Service is Available

Transco's tariff provides that a shipper's "swing" no-notice rights are at those point(s) of delivery set forth in the shipper's contract at Swing Service Delivery Points (SSDP) up to the shipper's TCQ. Those points are classified as traditional points. Historically, Transco also has provided shippers the flexibility at other SSDPs, i.e. non-traditional or secondary points. Section 5.1(b) of Rate Schedules FT, FTG, and FDLS

Example:



Contract TCQ = 5,000 ; Shipper may take no-notice of:

- 5,000 Traditional (point in Exhibit B);
- 15,000 Non-Traditional (point within contract path); and
- 5,000 Secondary (point outside path within zone for which reservation was paid)
- If no restrictions on the pipe, total no-notice available to shipper = 25,000

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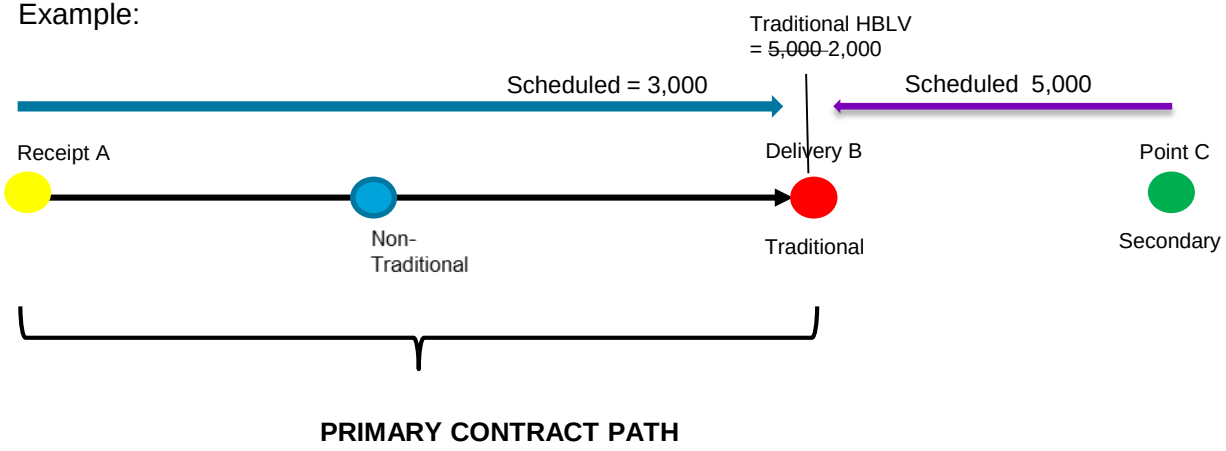
Determination of “Swing” No-Notice Rights

- No-Notice priority for each point is determined by the relationship to the primary path of the contract. Transco’s tariff (Section 4.7 of Rate Schedules FT, FTG, and FDLS) allows a shipper to schedule to valid delivery points from valid receipt points without restriction to the direction of flow, provided however, the sum of the volumes through a given segment may not exceed the TCQ. The shipper can schedule both forwardhaul transportation up to the TCQ quantity and backhaul transportation up to the TCQ quantity for delivery at the same valid delivery point at the same time. Reverse path transportation is subject to operating conditions.

Example:



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Contract A above has a TCQ of 5,000 and only one delivery point is traditional (listed in Exhibit B) – Point B

- The Shipper may schedule or high burn no-notice up to 5,000 in the primary direction of the contract between receipt point A and point B and may schedule in the reverse from point C to point B up to 5,000

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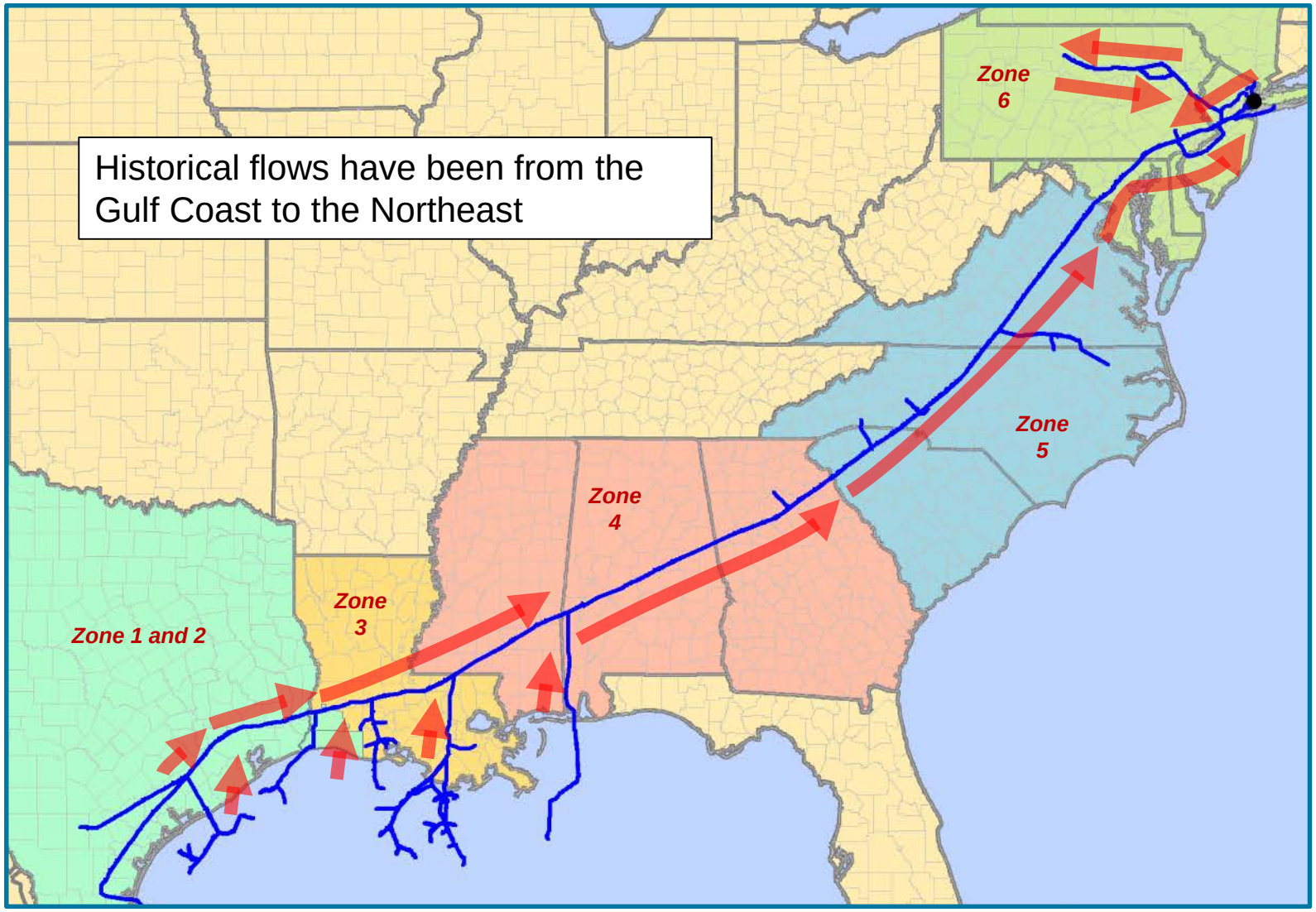
Transco Historical Flow Pattern ~2014



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Presumed Receipt of St 65 for High Burn Requests

- When Transco implemented its 1Line business system in 2003, high burn no-notice requests were designated with a path. Shippers select the receipt and delivery point to request the no-notice swing activity. This path was used to determine the priority of the request and contract capacity.

- Shippers created operational complications by selecting smaller receipt and delivery point combinations and segmenting to avoid Throughput Section Boundaries (TSBs). This allowed shippers to circumvent constraints.
  - Throughput Section Boundary (TSB): A specific location or a segment of Transco's system where there may be less capacity available than the requested nominations in a given cycle. TSBs are established as receipt or delivery based with a specified direction of flow.

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Presumed Receipt of St 65 for High Burn Requests

- To address those operational complications, Transco implemented a business practice under which it evaluates a no-notice request through every constraint back to the Transco gulf production area, where most of the supply that supported high burn no-notice was sourced at the time.
  - Zone 6 exception: Shippers in zone 6 who request high burn no-notice are evaluated through constraints on Leidy and constraints back to the gulf production area.

- With the recent shifting of supply sources and contract primary paths in the opposite direction of the traditional flow of the system, using a path and evaluating the no-notice request back through gulf constraints is no longer a valid business assumption.

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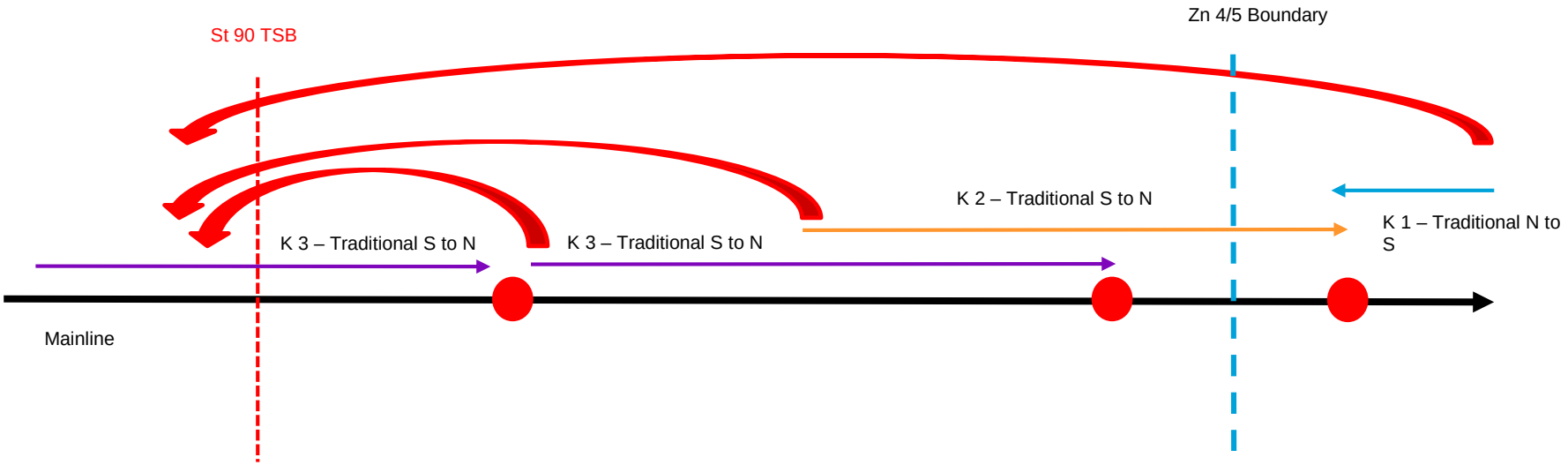
Evaluation of High Burn Requests

Current high burn no-notice evaluation through TSBs



For illustration purposes, each contract line represents the shipper's nomination path for a high burn no-notice request transaction. All three contracts would have their high burn no-notice requests evaluated equally through the St 90 TSB to determine throughput capacities even though two of the contracts do not have contractual rights through the TSB.

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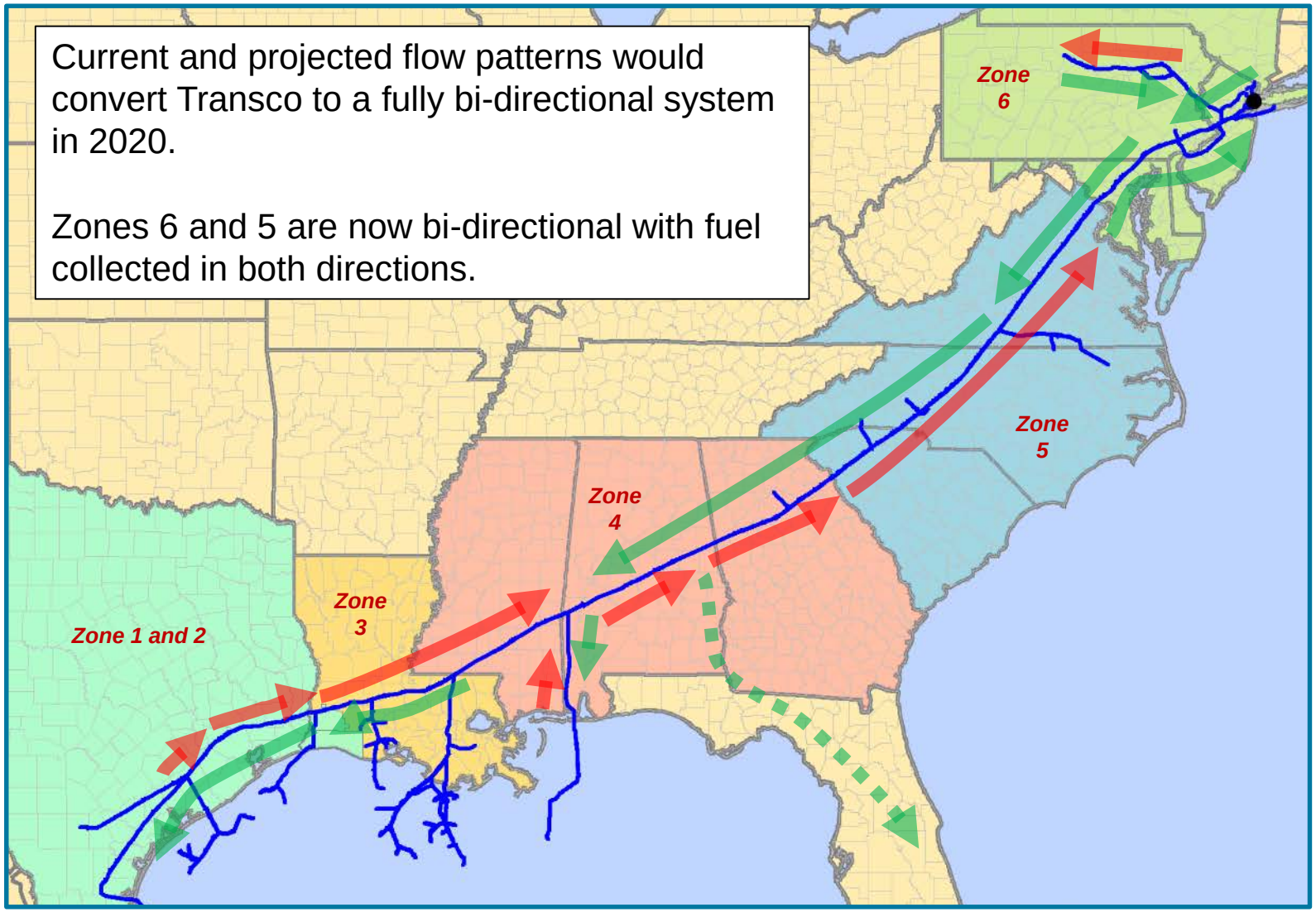
Transco Flow Patterns ~2015 - 2020



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Support for Updating the Business Practice for High Burn No-Notice

- Transco's contractual obligation supported by the tariff provides for "swing" no-notice at the traditional points on a shipper's contract, not at non-traditional or secondary points.
  - However, Transco proposes tariff provisions to allow non-traditional and secondary "swing" flexibility when operationally feasible
- Additions of large sources of supply on Transco's system in the market area has resulted in contract primary paths and pipeline flows in the opposite direction of the traditional flows
- Nominations and HBLV no-notice requests are evaluated together through TSBs today. Under the proposal, Pipeline Control can evaluate these two types of transactions separately and target restrictions where necessary
- HBLV no-notice request transactions have no supply; the gas is received at the delivery point and is supplied by Transco at that point
- The priority of the HBLV no-notice request can be determined by the relationship of the SSDP to the contract's primary path

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Operational Challenges Created by HBLV No-Notice

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Transco Operations

- Transco is one of the largest pipelines in the nation and continues to expand
- Power generation and LNG exports have spurred growth
- Abundant shale supply introduces changes in pipeline gas flows
- Large imbalance swings contribute to operational challenges
- Continuous analysis is needed of shipper activity and imbalances
- Use of OFOs with varying tolerances and minimizing impacted areas
- Divided into 4 OIAs and 8 zones

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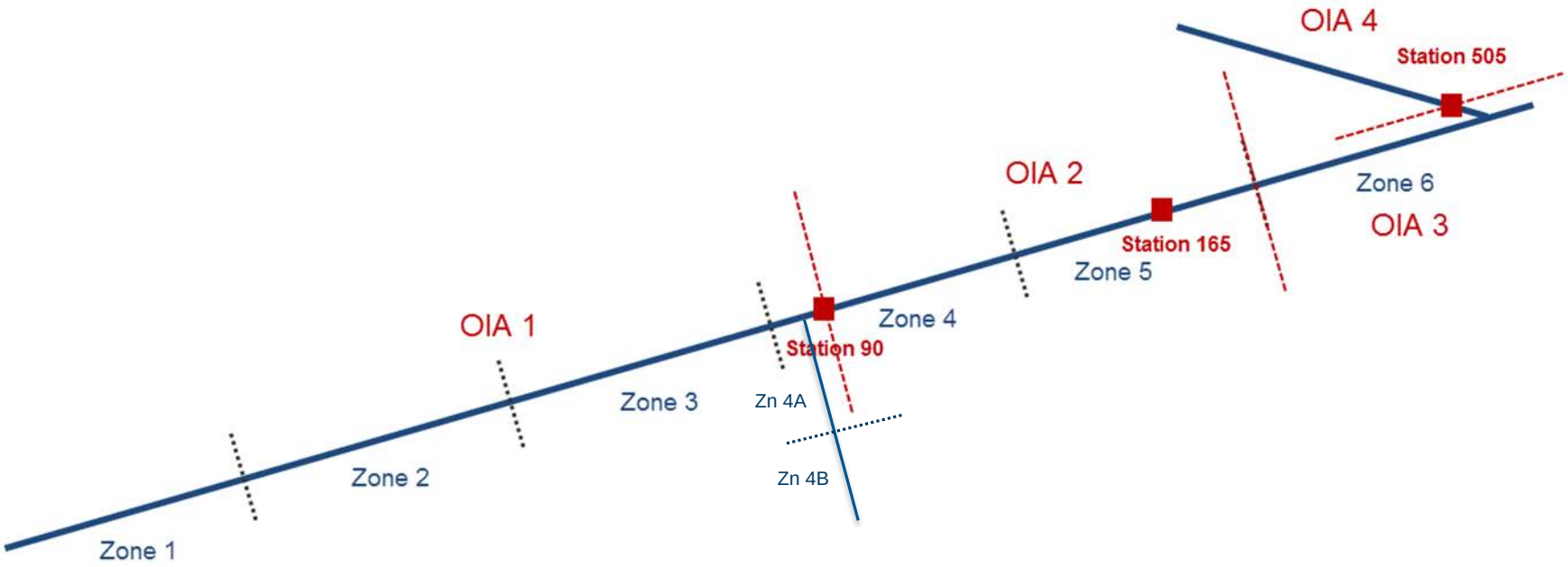
OIAs/Zones



Existing OIAs

OIA 1 – Transco's system in its entirety south and west of station 90

OIA 2 – Station 90 and Transco's system north and east of station 90 up to end of Zone 5

OIA 3 – Zone 6 with the exception of Station 505 and the Leidy line system west of Station 505

OIA 4 – Station 505 and the Leidy line system in its entirety west of Station 505

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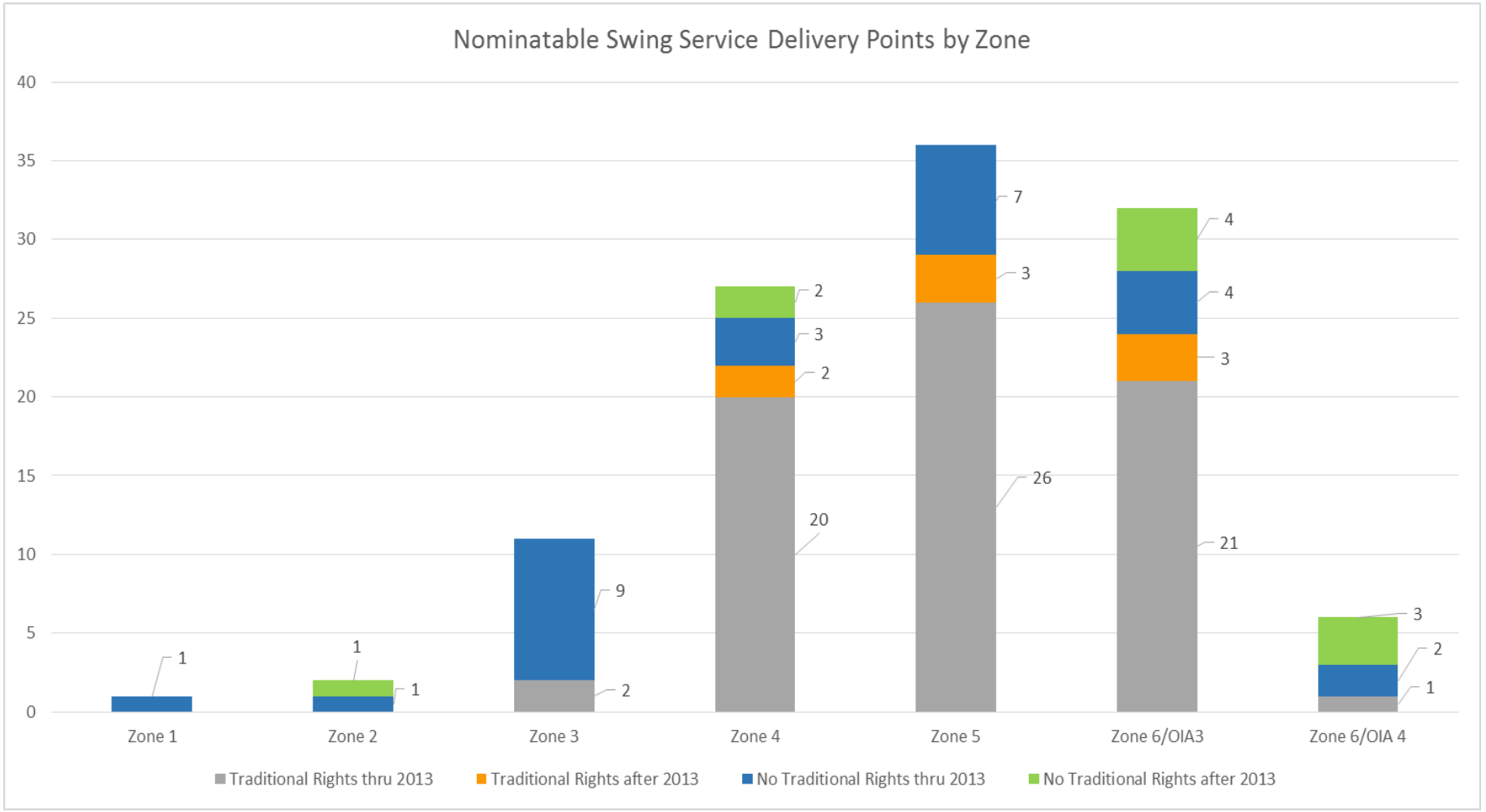
Nominatable Swing Service Delivery Points (SSDP) by Zone



Total number of SSDPs = 115; Total number with no traditional rights = 37

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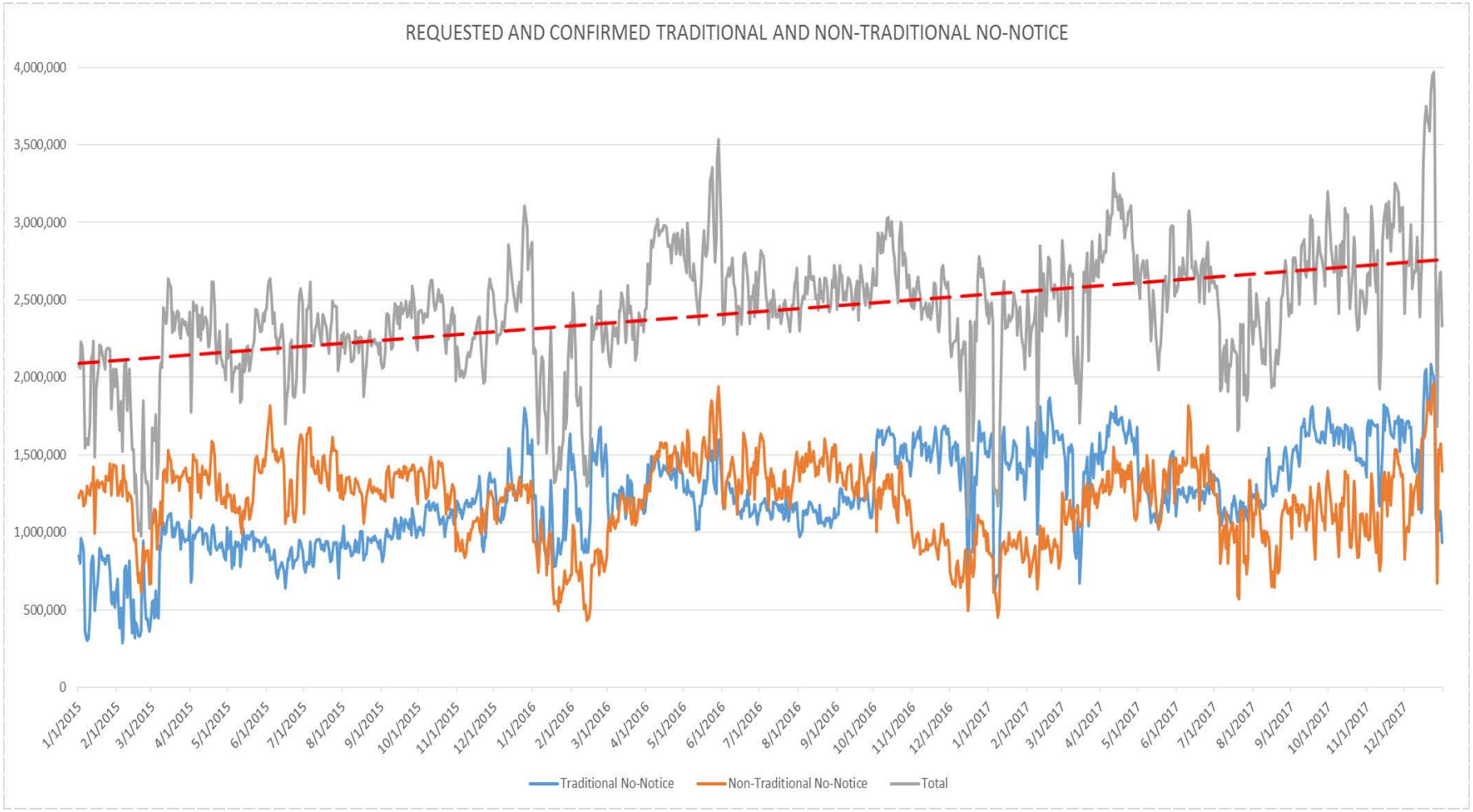
Non-Traditional Swing vs. Traditional Swing 2015 – 2017 Requested and Confirmed



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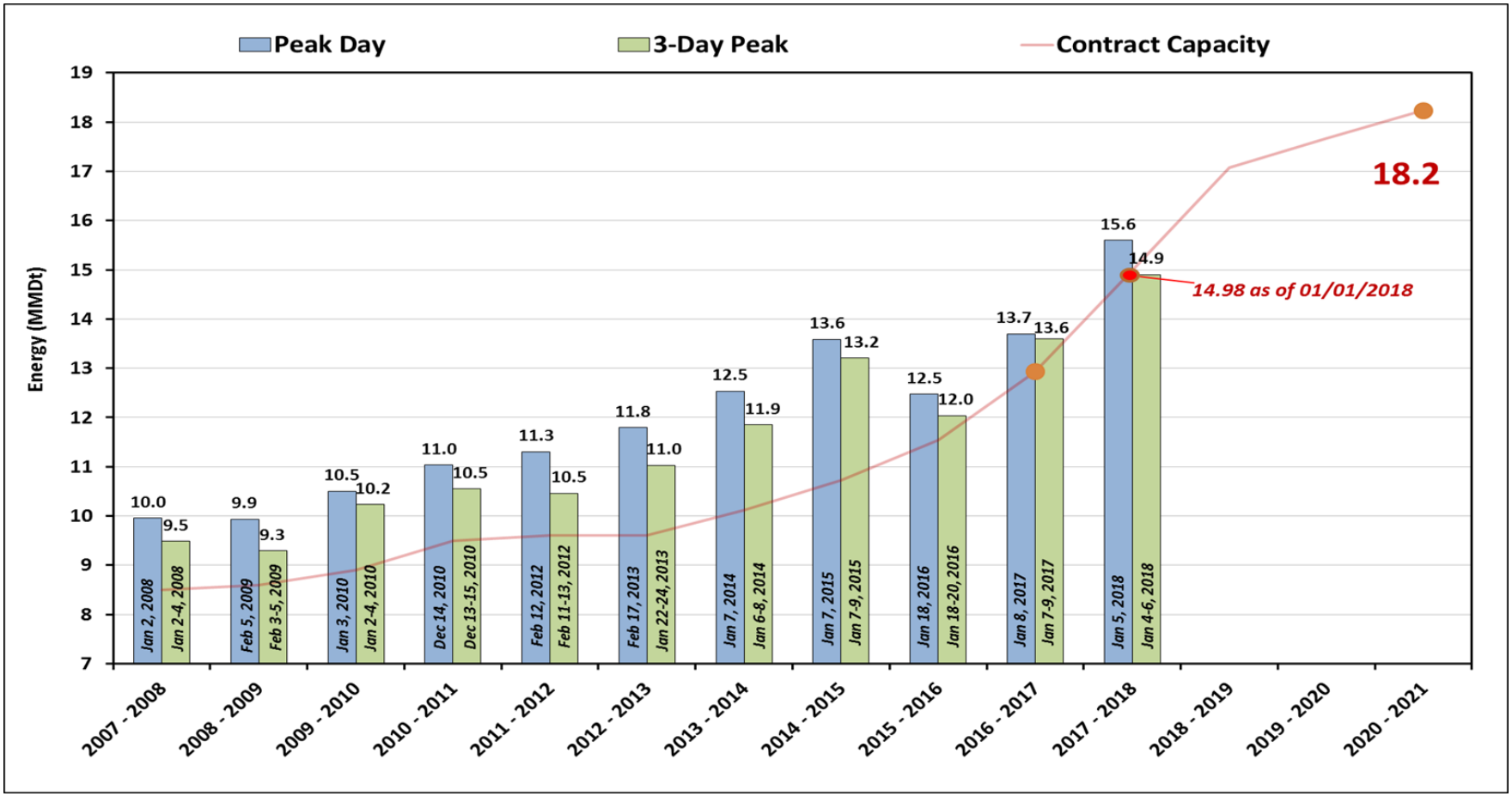
Transco Peak Day Deliveries and System Capacity



Note: Includes all system deliveries and all Zones.

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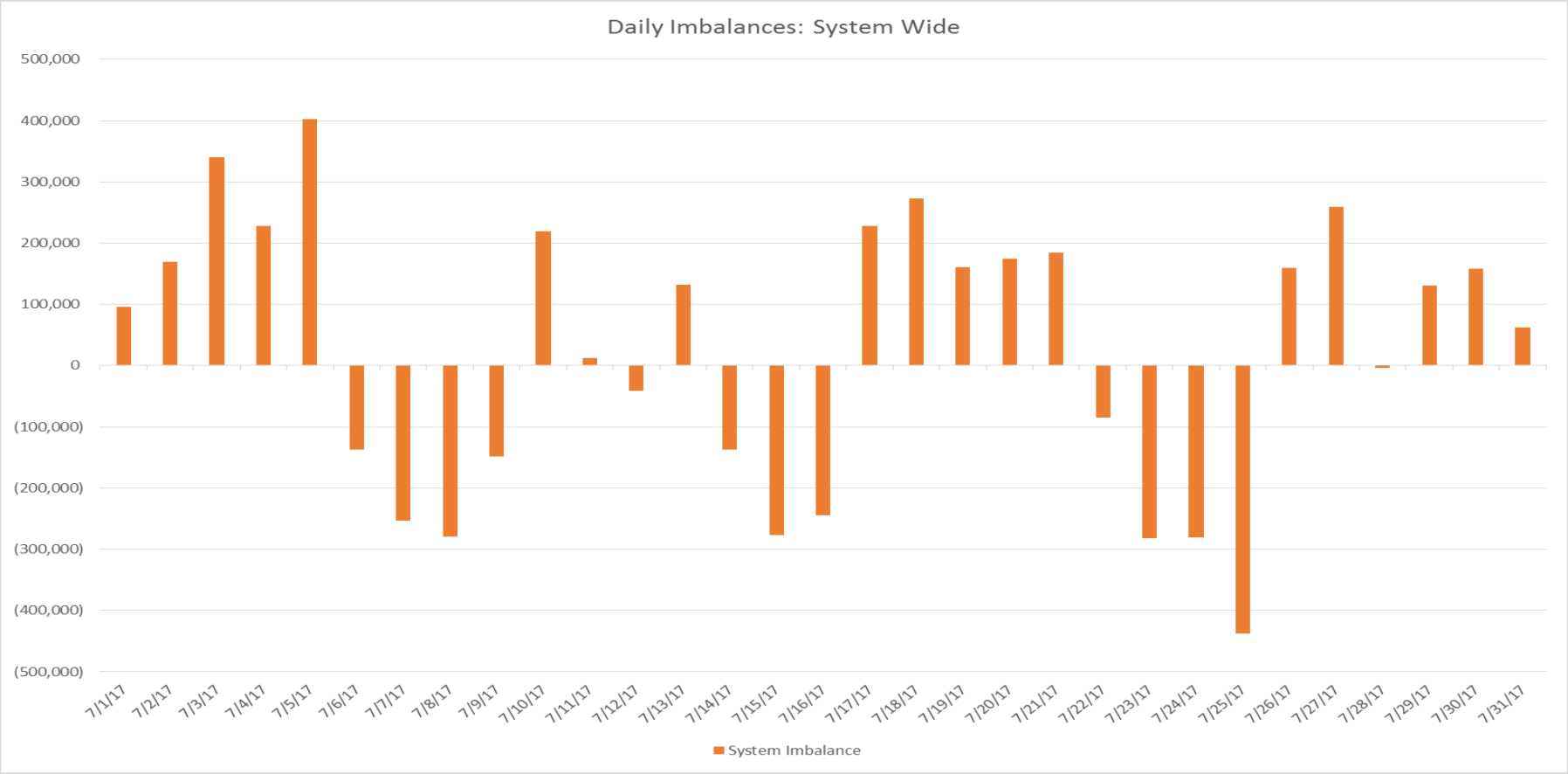
Daily Imbalance Fluctuations

During the month, shippers build imbalances in one direction over a number of days and swing in the reverse over a number of days – The total system transportation imbalance for July 2017 resulted in a 780 Mdts imbalance Due From shippers. Transco provided deliveries without shipper supply.



Note: (-) indicates a DUE TO SHIPPER imbalance and + indicates a DUE FROM SHIPPER Imbalance

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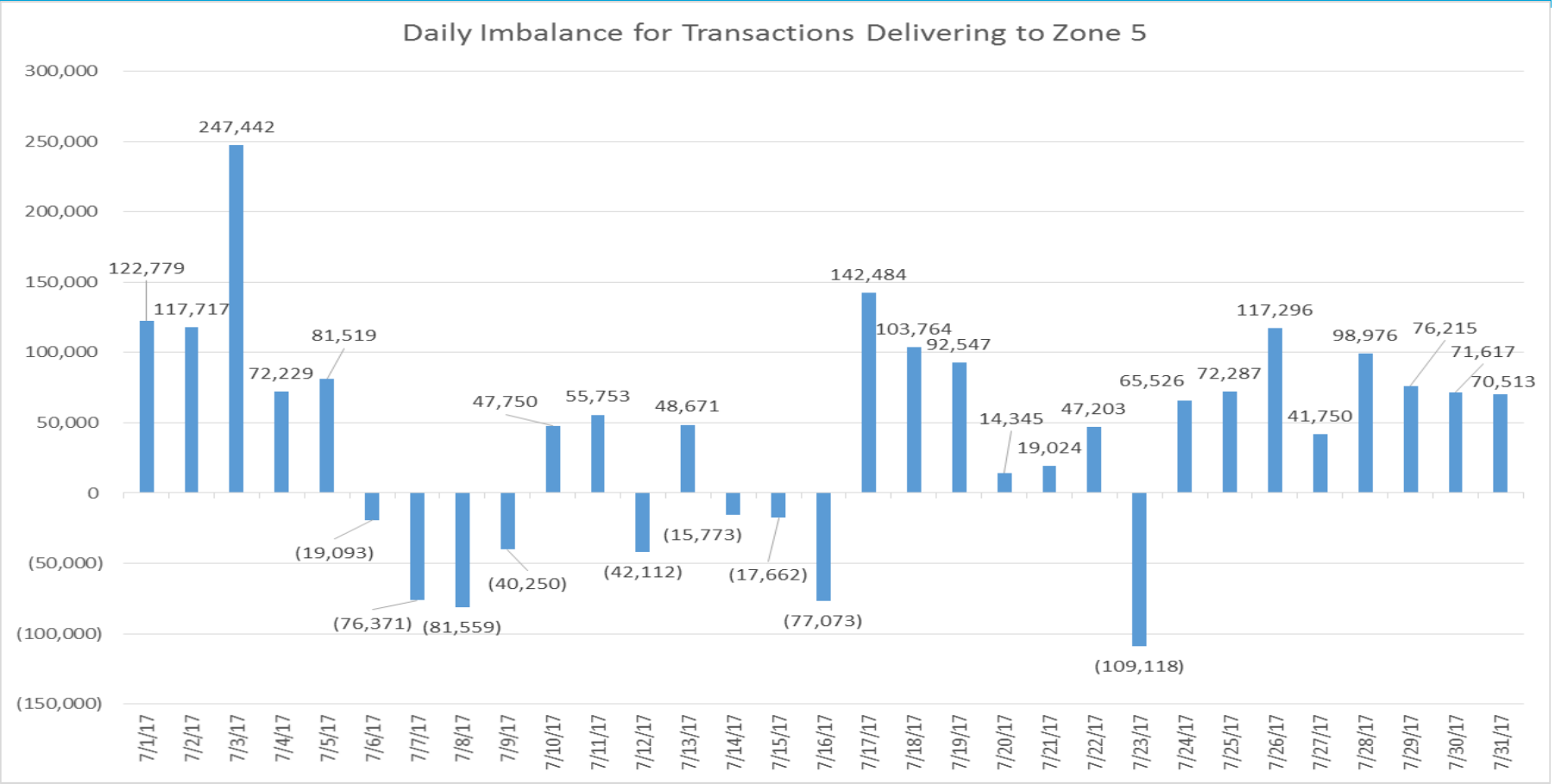
Daily Imbalance Fluctuations Associated with Zone 5 Deliveries

Daily transportation imbalance related to transactions with deliveries to Zone 5 resulted in a total imbalance July 2017 of 1.3 MMdts Due From shippers. Transco provided deliveries without shipper supply.



Note: (-) indicates a DUE TO SHIPPER imbalance and + indicates a DUE FROM SHIPPER Imbalance

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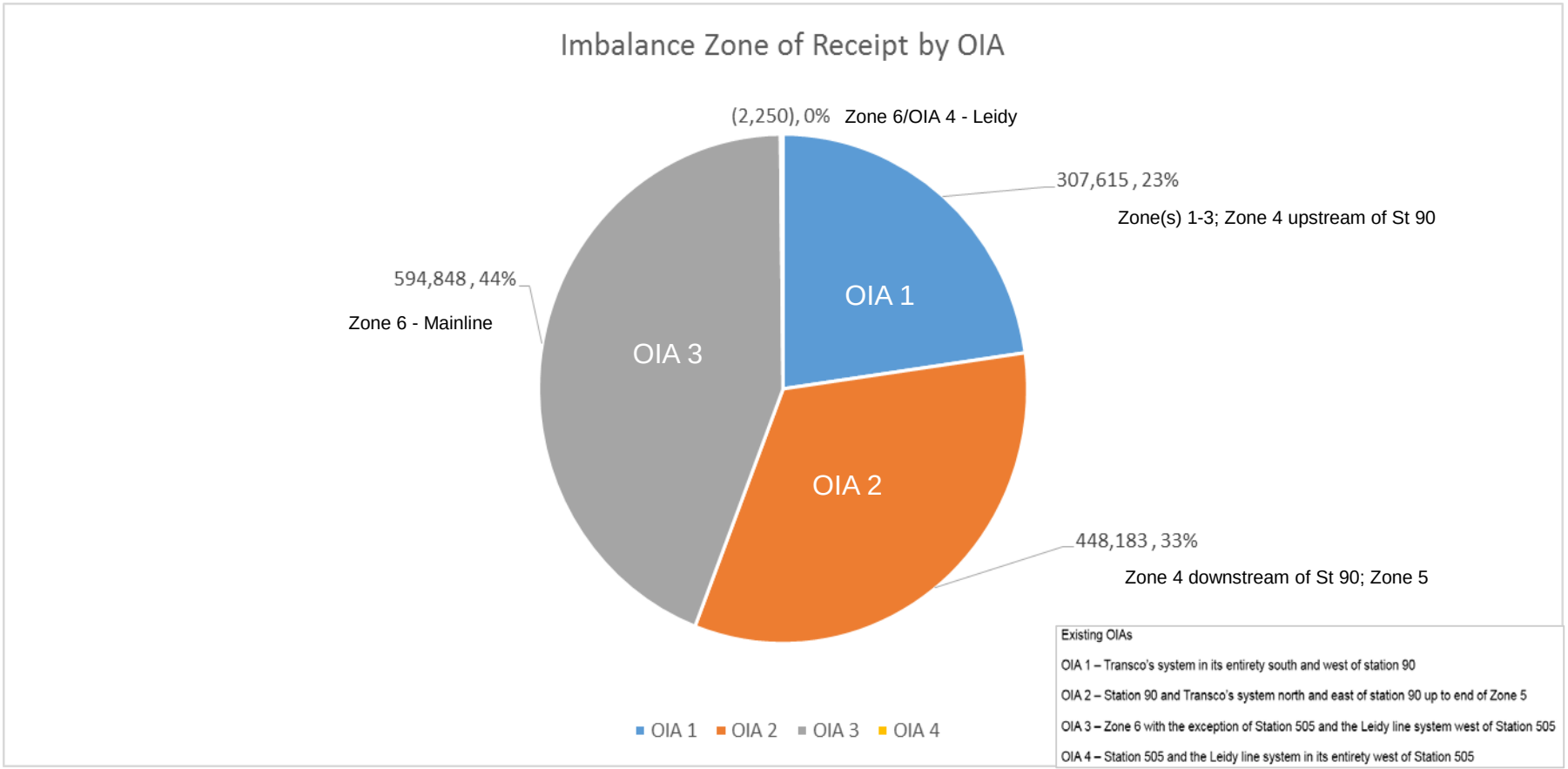
Shipper designated receipt points for High Burn No-Notice for gas delivered by Transco

Transportation Imbalances are held in the zone of receipt – The July 2017 DF Imbalance of 1.3 MMdts was supplied by Transco in Zone 5 without a supply of gas from the shipper selected zone of receipt



Note: (-) indicates a DUE TO SHIPPER imbalance and + indicates a DUE FROM SHIPPER Imbalance;

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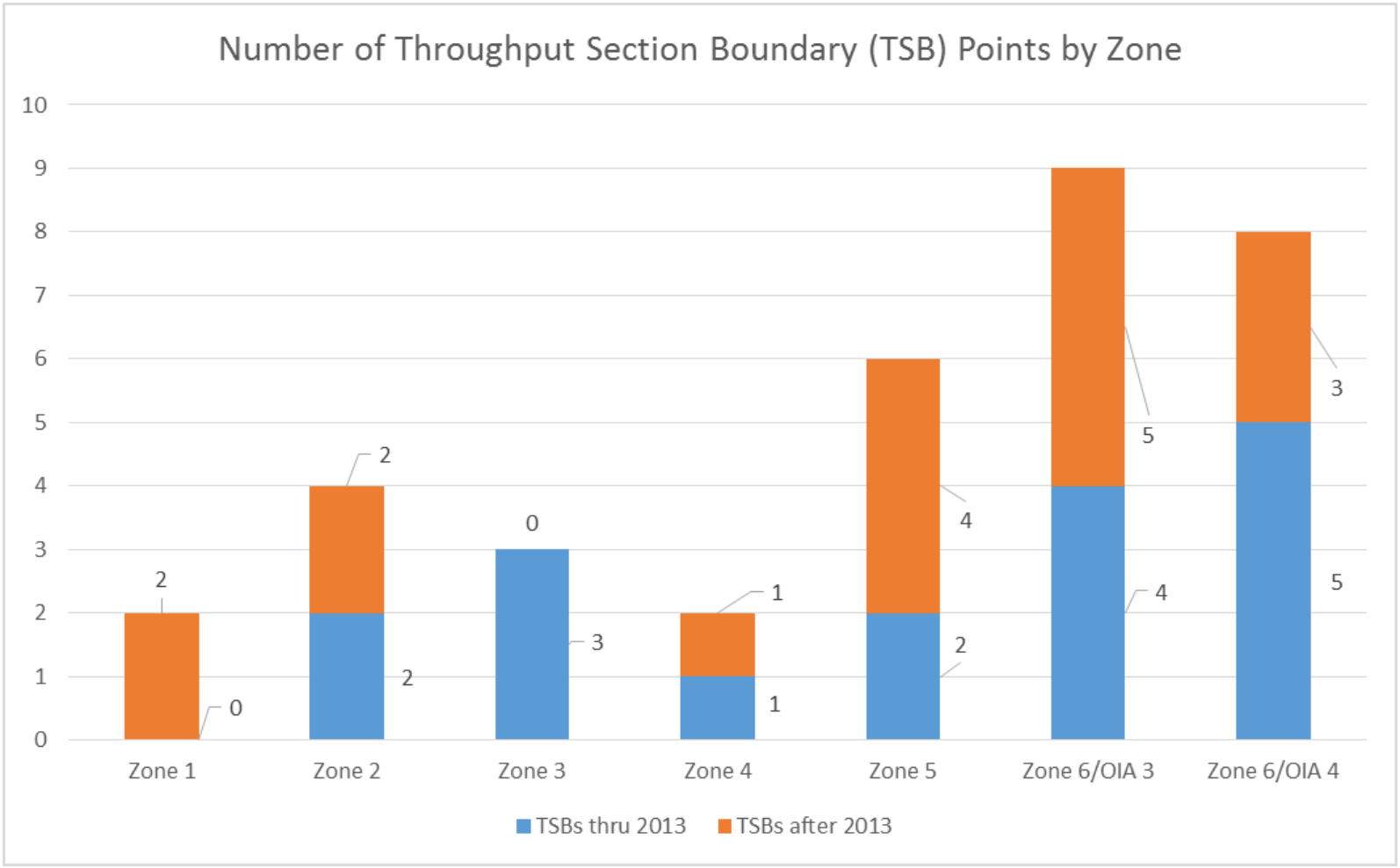
Increase in the Number of Throughput Section Boundary (TSB) Points



Throughput Section Boundary (TSB): A specific location or a segment of Transco's system where there may be less capacity available than the requested nominations in a given cycle. TSBs are established as receipt or delivery based with a specified direction of flow.

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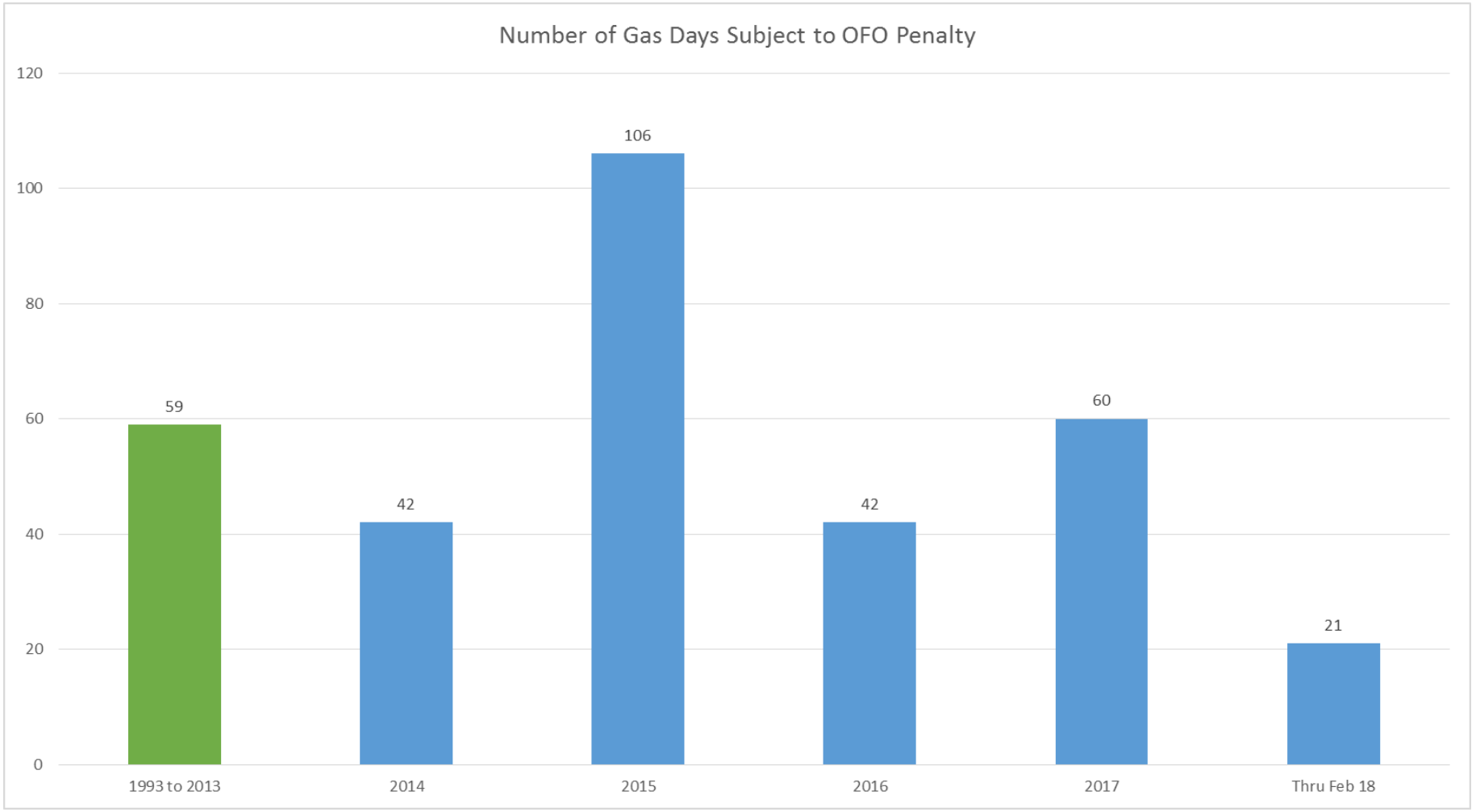
OFOs Issued on the Transco System



In 2015, Transco began calling OFOs to specific zones, delivery based and with varying percentages. Transco uses both its Imbalance and Scheduling OFO provisions.

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Transportation Imbalances and New Station 95 Pool

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Transportation Imbalances

- Transportation imbalances are held in the zone of receipt at the contract level (sum of all transactions) during the month and for trade

- Transportation Imbalance positions:
  - Due From Shipper (DF) (short to pipe) – result of high burn: measurement > scheduled
  - Due To Shipper (DT) (long to pipe) – result of low burn: measurement < scheduled
  - A Net DT or DF imbalance position by OIA/Zone is determined at the end of the trading period for final resolution (sum of all contracts within OIA/Zone)

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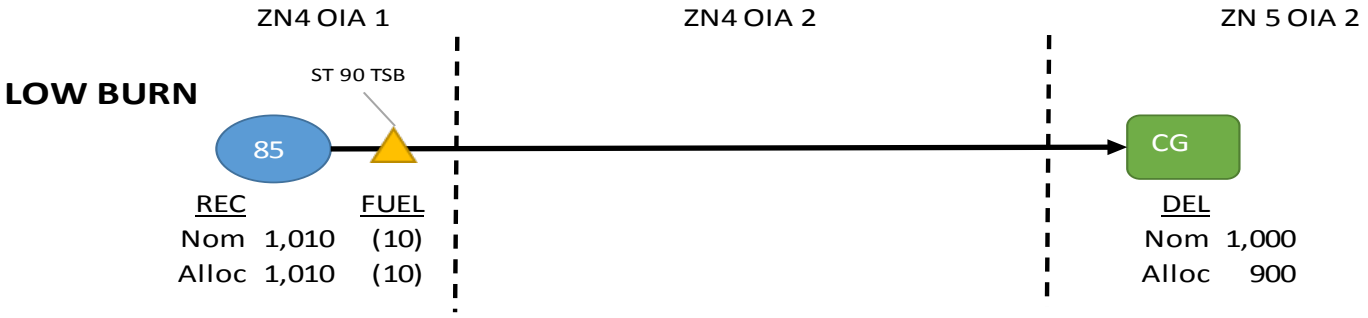
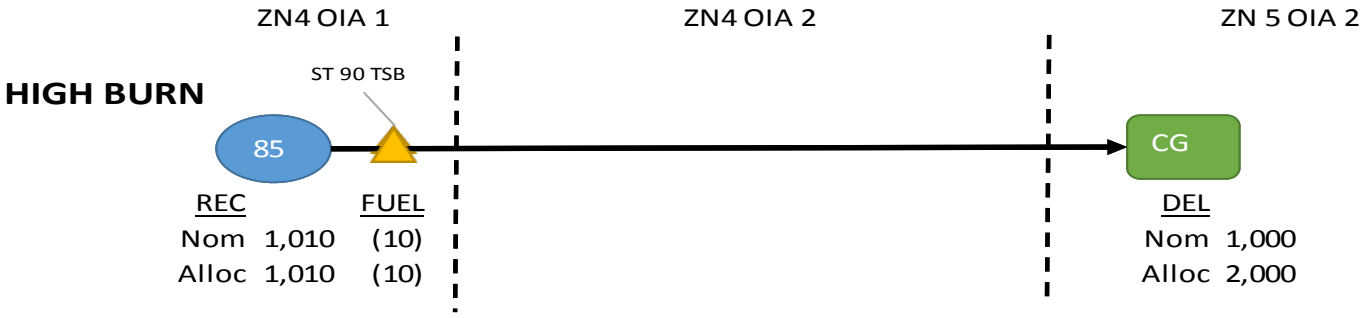
Current Practice

Transacting from St 85 pool to delivery in zone 5; Low burn and high burn imbalance reside in OIA 1/Zn 4



	IMBAL	* Low Burn remains at St 85 Pool
Nom	0	
Alloc	(100)	Due To Shipper (Long to Pipe)



	IMBAL	* High Burn remains at St 85 Pool
Nom	0	
Alloc	1,000	Due From Shipper (Short to Pipe)

Scheduled transactions are subject to contracting and throughput capacities. Shipper can designate the receipt location for imbalance resolution for high burn transactions.

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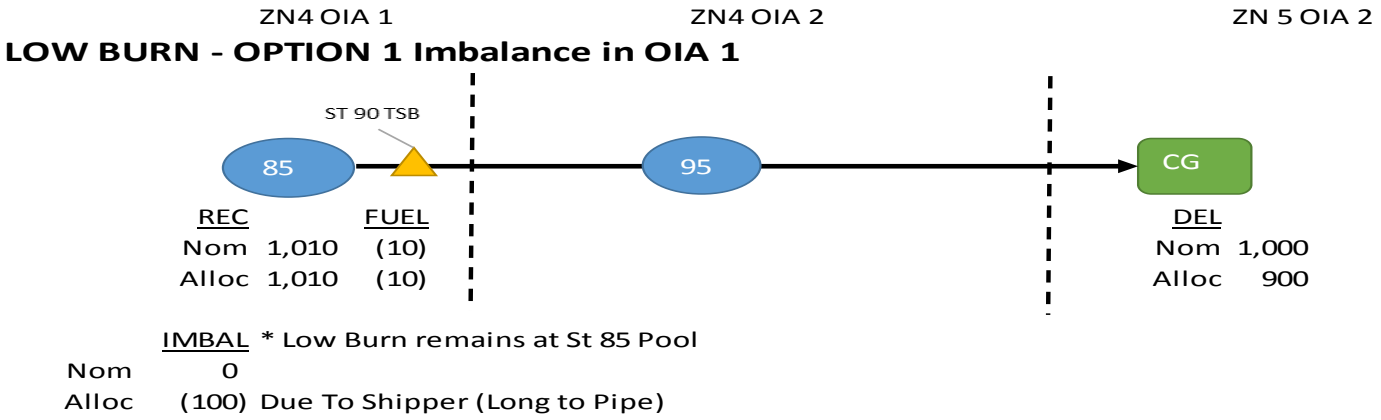
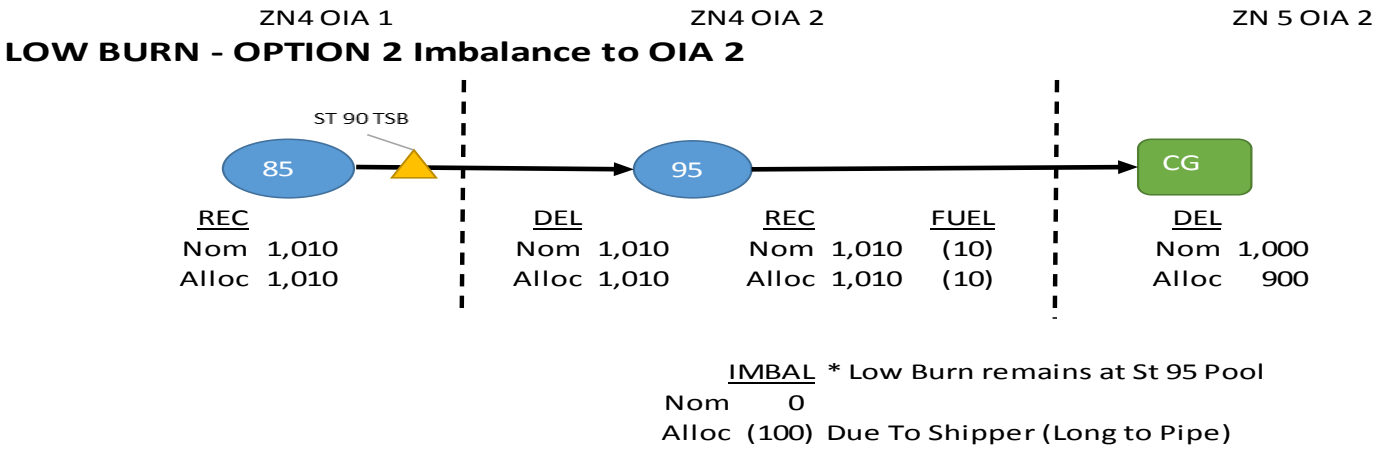
New Station 95 Pool

Use of segmentation to move low burn activity from OIA 1 to OIA 2





Scheduled transactions are subject to contracting and throughput capacities. There would be no transportation charge or fuel on the transaction from St 85 Pool to St 95 Pool in option 2

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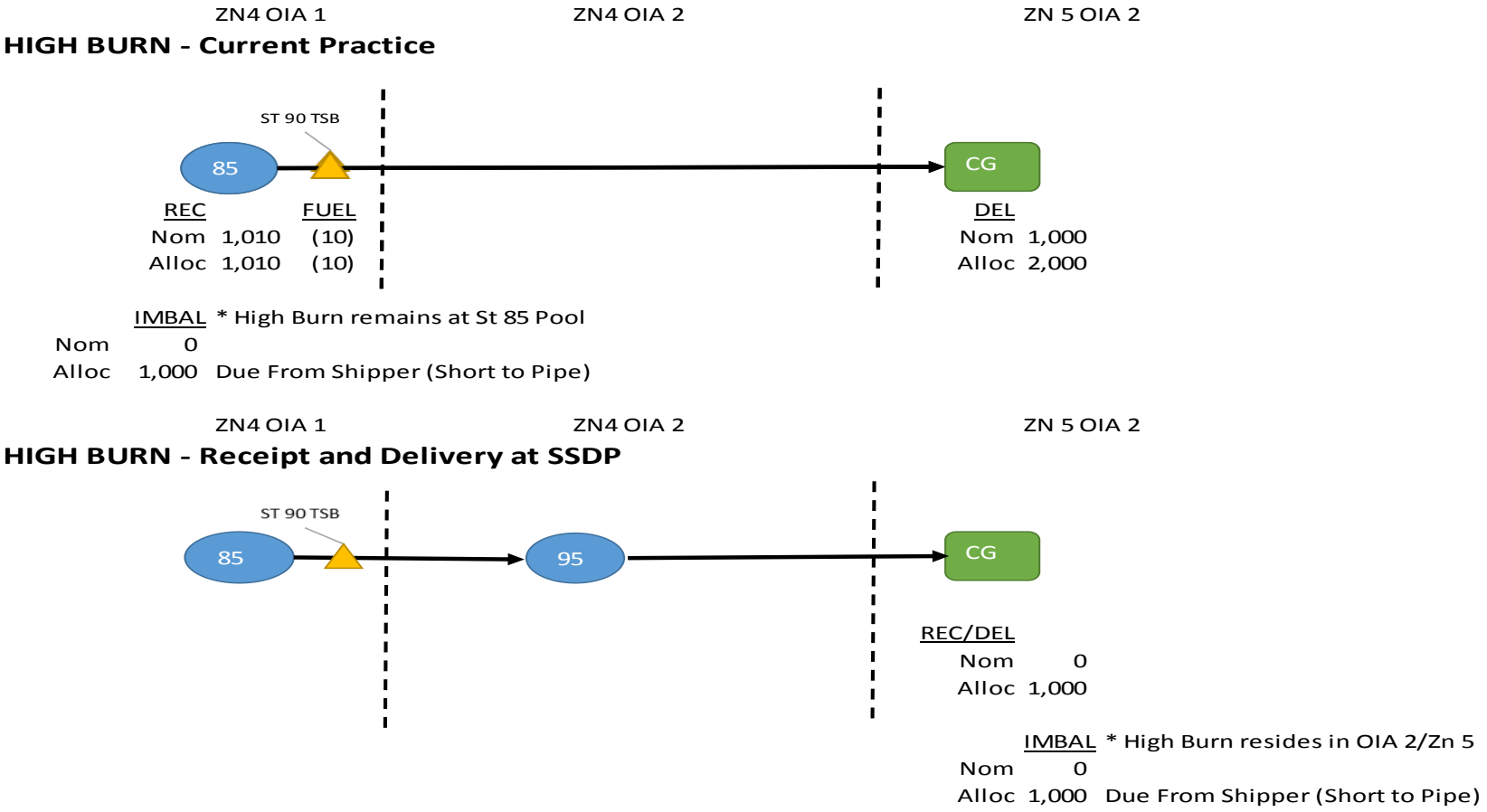
Current vs Proposed HBLV No-Notice Practice

High Burns at the point of Delivery



Scheduled transactions are subject to contracting and throughput capacities. High Burn transaction is at the SSDP and this location is also the zone of receipt of any imbalance

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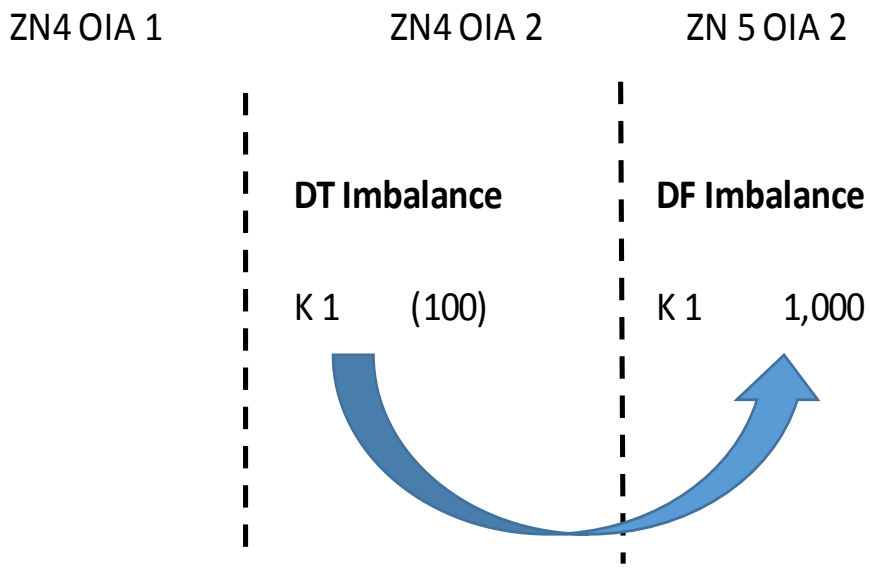
Trade Example

Trading of Imbalances Within an OIA

- At the end of the month, imbalances for each Zone/OIA are held at the contract level for trade. The contract imbalance is a sum of all transactions for the month resulting in a net Due To or Due From imbalance.
- In the example, the Due To imbalance was created in zone 4. In order for the shipper to trade, the imbalance must be moved to zone 5. A trade fee and trade fuel need to be collected on the 100 dts.
- Contract 1 will then have a 900 Due From imbalance in zone 5 to either trade with someone else or cash out at the end of the trade period.

Trade of DT Imbalance from Zn 4 with DF Imbalance in Zn 5 – OIA 2



Trade Fee and Trade Fuel collected on 100 dts

(-) indicates a DUE TO SHIPPER imbalance and + indicates a DUE FROM SHIPPER Imbalance

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Methods to Resolve Imbalances

- **During month:**
  - Receipt make up of Due From imbalance (gas owed pipe)
    - Fuel will be collected on the make up volume and based on original transactional path to ensure the correct zone(s) percentage is assessed.
  - Delivery make up of Due To imbalance (gas owed shipper)
    - Make up volume will be charged transportation based on transactional path to ensure the correct zone(s) rate is assessed. Fuel was collected when imbalance was created.

- **During trade period (1st seventeen business days of the month following production month):**
  - Each contract net imbalance Due To or Due From can be traded with self or with others within an OIA.
  - Trade fee and trade fuel will apply to Due To shipper if imbalance is moved to higher zone(s) within OIA. i.e. zn 1 Due To shipper trades with zn 3 Due From shipper. Trade fee/fuel will be assessed for imbalance move from zn 1 to 3 within OIA 1.

- **After trade period:**
  - Cash out any remaining contract imbalances netted at OIA/Zone level

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Wrap Up

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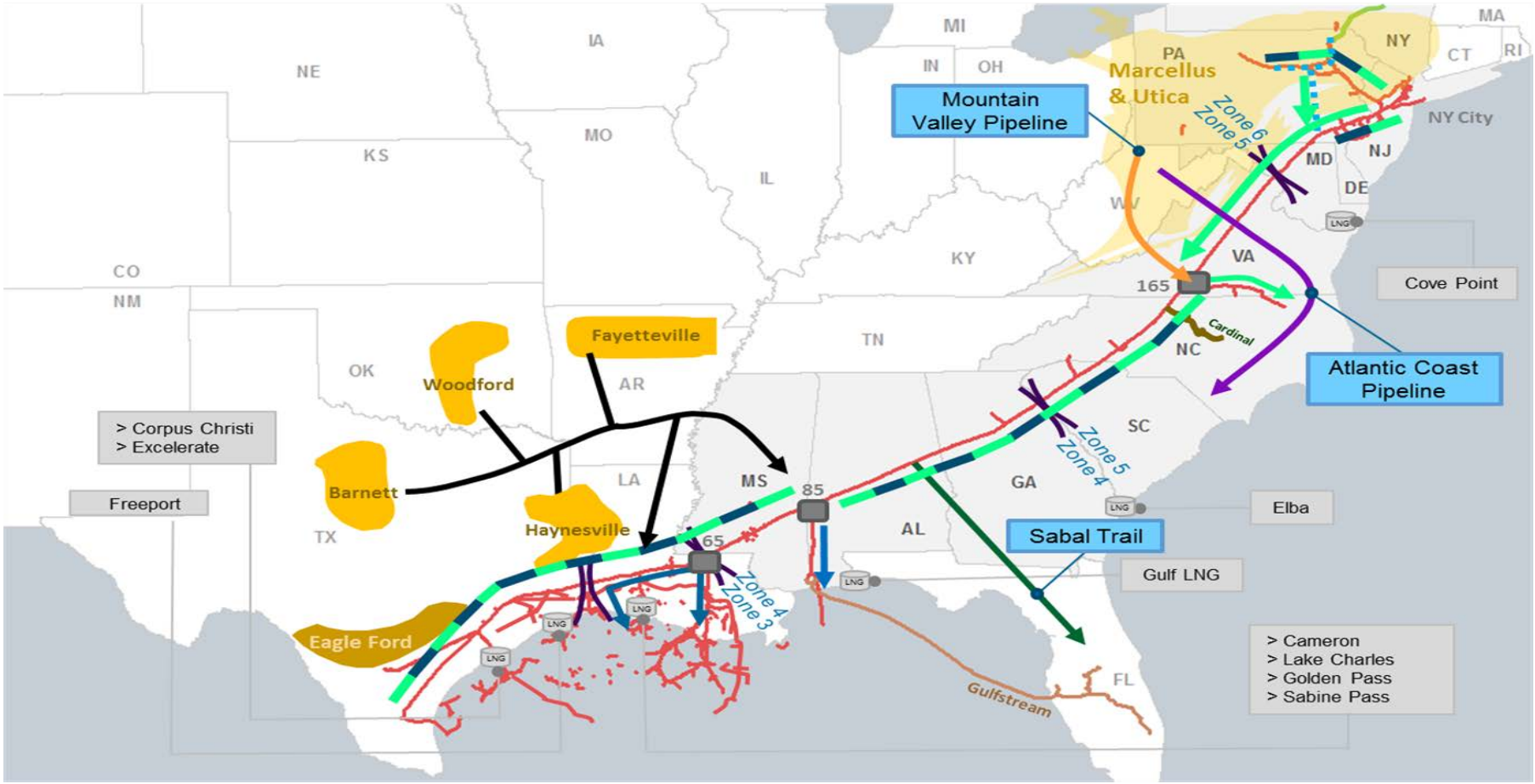
Zone 5 Supply Opportunities



- Increase of future supply in Zone 5 coming soon:
  - Atlantic Sunrise on Transco - 1.2 BCF in 2nd half 2018
  - Mountain Valley Pipeline interconnecting to Transco Zone 5 – 2 BCF in 4th Q 2018
  - Atlantic Coast Pipeline – 1.5 BCF to North Carolina and Virginia in late 2019

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Addressing the Business Practice for HBLV No-Notice

- **No-notice priorities of service offered by Transco: Traditional, Non-Traditional, Secondary and IT to continue providing additional flexible service**
  - Flexible services will continue to be available when operationally feasible
  - Only Traditional and IT no-notice are provided by current tariff in Section 5.1 (b) of Rate Schedule FT, FTG, FDLS and IT
- **No-notice is related to the primary contract path**
  - Supported in current tariff in Section 4.7 of Rate Schedule FT, FTG, and FDLS
- **Removal of Path for HBLV no-notice requests without a supply of gas**
  - No-notice is received and delivered at the point of delivery and is supported by Section 5.1 (b) of Rate Schedule FT, FTG, and FDLS
- **Imbalances held in zone of receipt; HBLV no-notice receipt is at the SSDP**
  - No changes to Imbalance Resolution GT&C Section 25 or Cash Out GT&C Section 37
- **No additional capacity needed to use Station 95 Pool; No transportation fee or fuel between Station 85 and Station 95 transactions**
  - Segmentation allows shipper to relocate low burn requests from OIA 1 to OIA 2
  - Proposed tariff changes to GT&C Sections 28, 37, 51 and 52 to accommodate additional Station 95 pool in Zone 4
- **Transportation and fuel charges assessed as provided in current tariff**
  - No additional charges are proposed for transactions on system

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Conclusion

- Transco has demonstrated that the proposed changes to its tariff are just and reasonable
- Transco's tariff and operational conditions on Transco's system support the elimination of the business practice of presuming a path for HBLV no-notice requests
- Transco's current tariff only provides for no-notice "swing" service for firm shippers at traditional SSDPs
  - Proposal is to add no-notice at non-traditional and secondary SSDPs when operationally feasible
- The new Station 95 Pool is beneficial to shippers

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QUESTIONS?

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