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June 19, 2019

VIA ELECTRONIC FILING

Mr. Joel H. Peck, Clerk
c/o Document Control Center
State Corporation Commission
Tyler Building – First Floor
1300 East Main Street
Richmond, Virginia 23219

RE: Application of Virginia Electric and Power Company to revise its fuel factor pursuant to VA Code § 56-249.6.

Case No. PUR-2019-00070

Dear Mr. Peck:

Enclosed for filing in the above-captioned matter is the Direct Testimony and exhibits of Gregory Lander on behalf of Appalachian Voices ("Environmental Respondents"). This filing is being completed electronically, pursuant to the Commission's electronic filing system.

If you should have any questions regarding this filing, please do not hesitate to contact me at (434) 977-4090.

Regards,

William C. Cleveland

cc: Parties on Service List
Commission Staff

190620236

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY *In reference: Application of Virginia Electric and Power Company to revise its fuel factor pursuant to § 56-249.6 of the Code of Virginia*	))))))))	Case No. PUR-2019-00070

Summary of Direct Testimony of
Gregory M. Lander

On Behalf of
Environmental Respondents

June 19, 2019

<u>Summary of Testimony of Gregory M. Lander</u>

My name is Gregory M. Lander. I am head of Skipping Stone, Inc.'s Energy Logistics practice. The purpose of my testimony is to discuss some of the improvements that Dominion Energy Virginia (the "Company") has made with respect to utilization of its pipeline capacity since its 2018 fuel factor hearing and to recommend that the Commission require the Company to (1) determine and track margins on third-party gas sales and (2) establish a reserve price for offered pipeline capacity. These measures will further protect the Company's ratepayers from unnecessary costs associated with pipeline capacity contracts.

As a result of my analysis of the Company's documents and data, received through discovery in this proceeding, I have determined that the Company has significantly improved its utilization of its existing pipeline portfolio during the period June 1, 2018 to May 31, 2019. In many cases, the Company used its existing pipeline contracts at load factors near or over 100% through a process called segmentation—the release of portions of a given contract which are unneeded to support the Company's generation fleet. These improvements in the utilization of pipeline contracts benefit the Company's ratepayers. My recommendations will help further ensure that ratepayers only bear the reasonable costs of the Company's pipeline capacity.

Finally, I also documented that the Company's existing contracts made significant deliveries to non-power plant locations during the review period. For example, 25% of its total used capacity on the Transco system—fully 51 billion cubic feet (Bcf) annually—went to uses other than Company power plants. Therefore, I conclude that the Company has sufficient pipeline capacity to serve its existing generation fleet. Further, because of the frequency, magnitude, and duration of the non-power plant deliveries under its existing pipeline contracts, I conclude that the Company has ample pipeline capacity to serve additional power generation load should that be necessary.

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY *In reference: Application of Virginia Electric and Power Company to revise its fuel factor pursuant to § 56-249.6 of the Code of Virginia*	))))))))	Case No. PUR-2019-00070

Direct Testimony of
Gregory M. Lander

On Behalf of
Environmental Respondents

June 19, 2019

I. Introduction

Q. Please state your name and business address.

A. My name is Gregory M. Lander. My business address is 83 Pine Street, Suite 101, West Peabody, MA 01960.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to discuss some of the improvements that Dominion Energy Virginia (the "Company") has made with respect to its pipeline capacity utilization since my testimony last year and to recommend that the Commission:

1) Require the Company to determine and track margins on third-party gas sales; and

2) Require the Company, when appropriate, to establish a reserve price for offered pipeline capacity.

I explain both of these recommendations at the conclusion of my testimony.

II. Qualifications

Q. What is your occupation and by whom are you employed?

A. I am President of Skipping Stone, LLC ("Skipping Stone").

Q. Please state your educational background and experience.

A. I graduated from Hampshire College in Amherst, Massachusetts, in 1977, with a Bachelor of Arts degree. In 1981, I began my career in the energy business at Citizens Energy Corporation in Boston, Massachusetts ("Citizens Energy"). I became involved in the natural gas business of Citizens Energy in 1983. Between 1983 and 1989, I served as

Manager, Vice President, President, and Chairman of Citizens Gas Supply Corporation (a subsidiary of Citizens Energy).

I started and ran an energy consulting firm, Landmark Associates, from 1989 to 1993, during which time I consulted on numerous pipeline open access matters, a number of Federal Energy Regulatory Commission ("FERC") Order No. 636 rate cases, pipeline certificate cases, fuel supply and gas transportation issues for independent power generation projects, international arbitration cases involving renegotiation of pipeline gas supply contracts, and natural gas market information requirements cases (FERC Order Nos. 587 *et seq.*). In 1993, I founded TransCapacity LP, a software and natural gas information services company.

Since 1994, I have also been a Services Segment board member of the Gas Industry Standards Board ("GISB") and its successor organization, the North American Energy Standards Board ("NAESB"). During the period 1994 to 2002, I served as a Chairman of the Business Practices Subcommittee, the Interpretations Committee, the Triage Committee, and several GISB/NAESB Task Forces. I am currently a Board Member of NAESB and have served continuously in that capacity since 1997.

Skipping Stone, Inc. acquired TransCapacity in 1999, and since that time I have headed up Skipping Stone's Energy Logistics practice, where my specialization has been interstate pipeline capacity issues, information, research, pricing, acquisition due diligence and planning. In 2001, Skipping Stone launched CapacityCenter.com, a pipeline capacity information service. In 2004, Skipping Stone was acquired by Commerce Energy Group, a national retail energy services provider. In 2005, I was appointed President of Skipping Stone, which operated as a wholly owned subsidiary of

Commerce Energy Group. In 2008, I purchased substantially all of the assets of Skipping Stone and now operate essentially the same business as before the Commerce Energy transaction as Skipping Stone, LLC.

From 1984 to present, I have maintained a deep familiarity with a wide range of pipeline transportation issues, beginning with access to pipeline capacity to make competitive sales, resolution of the pipeline take-or-pay contracting regime, pipeline affiliate marketer concerns, restructuring of the pipelines from merchants to transporters and thereafter, and definitions of what constituted a pipeline capacity "right" for the purposes of formulating the then newly commenced capacity release and capacity rights trading business process. I continue to be involved in nearly all facets of the capacity information and trading business as part of my duties at Skipping Stone. In addition, I have been the lead principal on all 50+ pipeline and storage mergers and acquisitions transactions as well as all pipeline and storage facility expansion projects for which Skipping Stone has been retained by potential purchasers and project sponsors to provide economic due diligence consulting and market analysis. In addition, I have testified before, participated in or assisted with proceedings before, state public utilities commissions and/or their staffs in the states of Maine, Massachusetts, Missouri, Virginia, South Carolina, California, Rhode Island, New Jersey, and New York with respect to infrastructure matters, integrated resource plans, and fuel cost recovery proceedings. Please refer to **GML** – **Exhibit 1**, which contains my current CV.

Q. **Have you previously filed testimony before regulatory commissions?**

A. I have filed testimony before the Massachusetts Department of Public Utilities, the Maine Public Utilities Commission, the Virginia Corporation Commission, the Missouri Public

Service Commission, the California Public Utilities Commission, the South Carolina Public Service Commission and the New York Public Service Commission. I have also filed testimony in several FERC proceedings. Please refer to <u>**GML**</u> – <u>**Exhibit 1**</u>, which contains a full list of case names and docket numbers in which I have participated as a witness.

Q. On whose behalf are you testifying in this proceeding?

A. I am submitting testimony on behalf of the Environmental Respondents ("ER").

Q. Have you testified before in a Company Fuel Factor proceeding?

A. Yes, I testified in last year's proceeding.

III. <u>Testimony and Recommendations</u>

Q. Did you do a similar analysis in this proceeding as you did in last year's proceeding?

A. Yes, I examined how the Company used or didn't use its existing pipeline capacity contracts during the period June 1, 2018 to May 31, 2019.

Q. Did you find similar results?

A. No, the results from this year's analysis showed what, in my opinion, are improvements in how the Company manages utilization of its existing pipeline portfolio through third-party sales and capacity releases.

Q. What did you analyze for your investigation of the Company's utilization of its existing pipeline capacity contracts?

A. As with last year, for this testimony, I looked into the Company's utilization of its interstate pipeline contracts to provide fuel to its power plants. I also investigated what other uses the Company made of the capacity that serves its plants and whether that use was to make third-party sales or to sell portions of that capacity in the capacity release market.

Q. What did you do first?

First, I investigated what level of contract utilization was made this year by comparing (1) the amount of scheduled use and the amount of capacity release to (2) the Company's contracted firm capacity. This analysis results in a load factor for each contract, which shows how much of the total capacity the Company used for each pipeline contract.

Q. Was the Company's use of its pipeline capacity contracts during this past year, in terms of scheduling and/or capacity release, different than its use before?

A. From my analysis, it appears that, during this past year, the Company used many of the contracts that were not used at the time of my analysis last year and that it employed those contracts at high load factors. In general, this is a good result. It means that the Company used its existing pipeline portfolio in a manner that yielded a higher value for ratepayers than it had during the previous period.

Q. Did the Company employ segmentation during the most recent period?

A. The Company employed segmentation in its use of most of its Transco (Transcontinental Gas Pipe Line) contracts which enabled it to use many of these contracts at greater than 100% load factors. Segmentation is accomplished either or both through the release of portions of a given contract—specifically, the release of the paths unneeded to support the Company's generation fleet—or by means of nominations which use portions of the contracted paths more than once. Segmentation allowed the Company to deliver or otherwise utilize a greater volume of gas/capacity on its Transco contracts than it has actually contracted.

Q. Please explain your analysis.

A. First, I used the scheduled quantity data that was provided by the Company in response to ER Set 3-8. I loaded that data into a database. I then created a table in the database with a time series for each contract (from June 1, 2018 through May 31, 2019) where each contract was associated with each day in the time series.

Q. What did you do next?

A. Then, for the contracts that were the subject of some concern in my fuel factor testimony last year, I extracted the use profile of those contracts. I found—nearly without exception—that the Company utilized these contracts during the period June 1, 2018 to May 31, 2019 at far greater load factors than it had the previous year. In part, this occurred because the Greensville County unit came on line in December 2018. However, even before December 2018, most of the Transco contracts were utilized at, and in many cases near or above, a 100% load factor. After December 2018, the load factors increased, as one would expect with the addition of a 1,588 MW generating facility.

Q. What did you find with respect to the Company's capacity release?

A. I found that during this most recent period (June 1, 2018 to May 31, 2019), the Company released nearly five times the quantity of its DETI (Dominion Energy Transmission, Inc.) capacity compared to the prior period and generated nearly five times the revenue. With respect to TCO (Columbia Gas Transmission), the Company released half as much as it did during the prior period, but this was more than offset by the higher utilization of the

Company's TCO contracts. So, for both DETI and TCO, the Company's management of its contracts delivered better ratepayer value during this period than it did in the prior period.

Q. What about the Company's Transco contracts?

A. Transco is a little different. There, although the Company released about the same amount of unused capacity as it did last year, the value to ratepayers was much lower.

Q. Why is that?

A. The Company's segmented releases of Transco capacity generated only 58% of the revenue as the prior period's segmented releases ($2.7 MM this period vs. $4.6 MM last period).

Q. To what do you attribute this reduction in revenue from the Company's Transco segmented releases?

A. Recent expansions, like the Atlantic Sunrise project, that Transco has brought into service in the regions where the Company was predominantly making segmented releases have suppressed the value of capacity in the secondary market. It is basic supply and demand. When the supply of pipeline capacity increases greater than the demand for that capacity increases, the value of that capacity declines.

Q. What does that mean for ratepayers?

A. It increases their risk. A utility pays a pipeline for its firm capacity regardless of whether the utility needs it. If a utility has excess capacity to release on the secondary market, it can minimize ratepayer exposure by only charging ratepayers the net of firm capacity contract prices less the revenue from capacity releases on the secondary market. The more the secondary market diverges from the firm contract price, the greater loss the ratepayer must absorb.

Q. Do you expect that the Company's capacity releases will have decreased value in the future as a result of the Atlantic Sunrise project and other Transco expansions?

A. Yes. In the future, I expect the Company will be less and less able to "make its ratepayers whole" by selling excess capacity on the secondary market. That, in turn, makes it important that the utility not over-procure firm capacity in the future because it virtually guarantees a greater net cost to ratepayers.

Q. Are the Atlantic Sunrise project and the other Transco expansions having any other consequences on the gas market that affect the Company?

A. Yes. In general, the Atlantic Sunrise project and other Transco expansions have mitigated natural gas commodity price spikes that occurred in Transco Zone 5 during the prior period. Specifically, I compared winter gas commodity prices in Transco Zone 5 and Transco Zone 6 New York over the last four years (2015 to 2019). Transco's Atlantic Sunrise project went fully operational in October 2018 and added an additional 1.7 Bcf/day of capacity that can bring Marcellus gas into Virginia, North and South Carolina, and markets farther south. What I found in comparing prices was that, for the winter of 2018-2019, Transco Zone 5 prices were only 66% of Transco Zone 6 New York prices even though prices in these zones had been roughly equivalent in prior winters. This analysis is depicted in **Figure 1** and **Figure 2**. Larger versions of **Figure 1** and **Figure 2**, as well as year by year charts, are in **GML – Exhibit 2**.

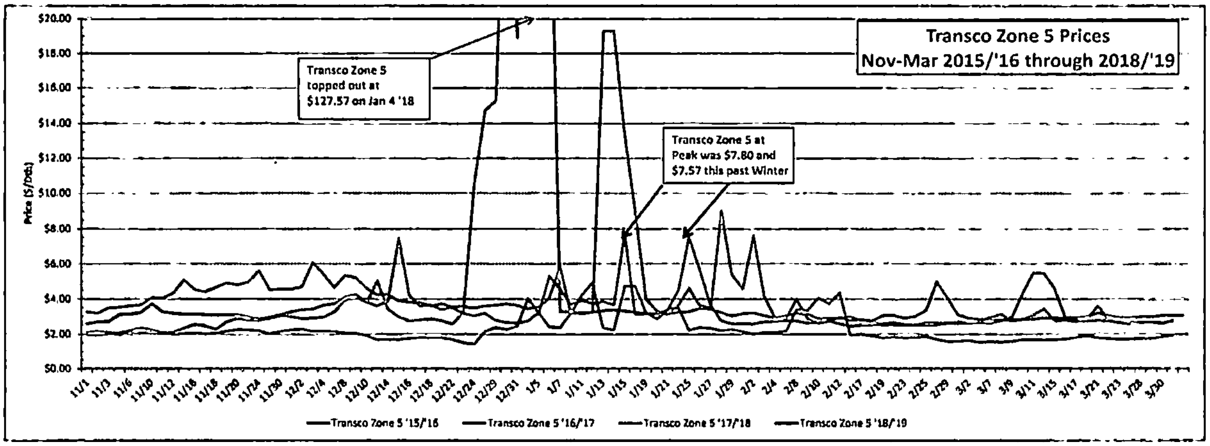

Figure 1: November to March (Winter) gas commodity prices in Transco Zone 5 for Winter 2015-2016 through Winter 2018-2019.

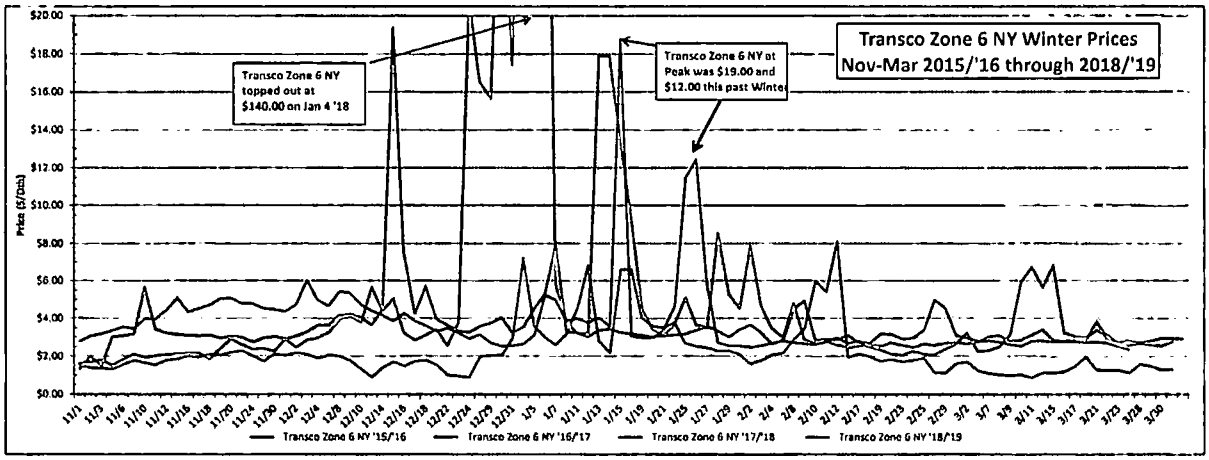

Figure 2: November to March (Winter) gas commodity prices in Transco Zone 6 New York for Winter 2015-2016 through Winter 2018-2019.

Q. What explains this change and how will it affect the Company?

A. In my opinion, this change happened, in part, because the Atlantic Sunrise is bringing an additional 1.7 Bcf/day of capacity into and through Transco Zone 5. It indicates that the Company is no longer vulnerable to the dramatic gas commodity price volatility that occurred in Transco Zone 5 during the January 2018 Bomb Cyclone and the January 2014 Polar Vortex. Figure 3 in GML – Exhibit 2 bears this out.

Q. Please describe the next step in your analysis.

A. For the next step in my analysis, I analyzed how the Company used its Transco contracts—the largest component of the Company's pipeline portfolio—during the period June 1, 2018 to May 31, 2019. I extracted and organized the scheduled quantities on the Company's Transco contracts by day and by receipt and delivery location pairs (*i.e.*, paths).

Q. What did you find?

A. I found, in my opinion, that the Company made very good use of its Transco contracts. For instance, the Company used contract 9025055, a contract with an MDTQ[1] of 3,183 Dthd with a path from the Marcellus to North Carolina, at an overall 119% load factor.[2] In contrast, during the prior period, the Company used this contract to deliver gas to its power plants on only approximately 100 days and to make deliveries to third-parties on 77 other days. The contract went unused a substantial portion of the year. The Company's increased use of this contract is a benefit to its ratepayers who in this period will no longer pay for the unused capacity.

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1 MDTQ stands for Maximum Daily Transportation Quantity. This term is also referred to as "Contract Quantity" or "Contract Demand." I use the term MTDQ to be precise as to the maximum daily quantity that can be transported across the paths of the contract on any given day.

2 This contract was utilized at 96% load factor prior to December 2018 and at a 144% load factor post-December 2018.

Q. How did the Company use its other Transco contracts?

A. Likewise, with respect to Transco contracts 9174931 and 9197820[3], the Company used these contracts at 129% and 72%[4] annual load factors respectively. Of the capacity utilized under these two contracts, the Company used 66% and 68% of capacity to deliver to its electric generation locations.

Moreover, the Company used the Seneca-AMA contract[5]—one of its Transco contracts that I expressed concern may not be utilized in my testimony last year (given the prior period's utilization of similarly pathed Transco contracts)—at a 117% load factor. That said, a significant portion of deliveries under this contract were to locations other than the Company's power plants: 72% of deliveries were to Station 165 (potentially feeding Company power plants and/or sales to third parties at the Station 165 Pool); 4.5% were to the interconnect with Elba Express pipeline at the Georgia/South Carolina border; and 21.4% of deliveries were to points in North and South Carolina including, pipelines, power plants, municipal gas utilities, and industrial users.

Q. Last year you observed that the Company underutilized its contract 200709 with DETI. What did you find with respect to this contract this year?

A. The Company's utilization of this contract increased to 99%, a dramatic and positive improvement. In addition, based upon analysis of scheduling activity on the pipeline downstream of deliveries off of Contract 200709 (into the Cove Point pipeline), I was

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3 Transco contracts 9174931 and 9197820 are each 250,000 Dthd contracts

4 Contract 9197820 had 45 days of no scheduling. Excluding those 45 days, the contract was utilized at an 82% load factor.

5 The Seneca-AMA contract is a 90,000 Dthd contract.

able to determine that the receipts from Contract 2007809 went mainly to a Company power plant (the Possum Point Plant) located on the Cove Point pipeline.

Q. Last year you also called the Commission's attention to the Company's TCO contract 71024. What did you find with respect to TCO contract 71024 this year?

A. With respect to TCO contract 71024—a 43,000 Dthd contract which has access to prolific and low-priced Marcellus/Utica supplies in Southwest Pennsylvania and West Virginia—this period's use increased to 55%, again, a marked improvement over the prior period. Most of those deliveries were to Company generation locations.

Q. Does your analysis lead you to make any other observations or conclusions?

A. Yes. One observation is that the Company has made better use of its pipeline capacity in the most current period than I observed in the prior period. In many cases, the Company was able to use its contracts at load factors over 100% through segmentation, significantly increasing its utilization of the delivery capability of its existing portfolio.

Q. Did the Company make any improvements in the transparency of its capacity releases?

A. Yes. During the most current period, with the exception of a single, one-year-long Asset Management Arrangement and four other deals, all 53 capacity release deals on DETI, TCO, and Transco of duration greater than one day had transparent viewable rates. This was a recommendation that I made in my testimony last year. The recommendation was, in part, that Asset Management Arrangement deals be limited to those at least a season in length and that all other deals be biddable. While 90% of the Company's releases were biddable, all but the one Asset Management Arrangement deal had transparent rates, a significant improvement in transparency over the prior period.

Q. Did your analysis lead you to make any conclusions about the sufficiency of the Company's existing pipeline capacity portfolio?

A. Yes. Most importantly, given the frequency, magnitude, and durations of deliveries to non-power plant locations, the Company, in my opinion, still has ample pipeline capacity to serve additional power generation load should that be necessary. By my calculations, for the three large Transco contracts on which a total of 205 Bcf was delivered between June 1, 2018 and May 31, 2019, fully 51 Bcf went to non-generating and non-pooling locations. In other words, 25% of the Transco capacity that the Company "used" was used to deliver gas to non-generating or non-pooling locations. This compares to 124 Bcf—60% of the Company's used Transco capacity—that was explicitly delivered to the Company's generation locations off of Transco.

Q. What does this tell you?

A. The Company has more than enough capacity right now—if intelligently used—to meet demand.

Q. What do you mean by "intelligently used"?

A. I mean that managing costs on peak winter days is a function both of maximizing pipeline capacity and also maximizing alternative fuel options. As I mentioned last year, using natural gas on peak winter days is a bad way to fuel a peaking resource given the fact that LDCs absolutely must have gas on those days to maintain pressure in their systems. To minimize vulnerability to associated price spike events, the Company would be wise to use cheaper, alternative fuels at dual-fuel units. Firing dual-fuel units on alternative fuels in turn frees up existing firm pipeline capacity for units that have no dual fuel capability on those days when the Company's peak coincides with PJM's peak.

Q. Why do you mention PJM?

A. When the Company's peak is non-coincident with PJM's peak, the Company can purchase power in the PJM market to meet its demand.

Q. Do you have any recommendations that the Commission should consider placing on the Company?

A. Yes a few.

Q. Please describe these suggested requirements that should be placed on the Company.

A. Because, at least for the current period, the Company has performed in a manner that I had recommended last year with respect to the management of its existing pipeline capacity, there are only two recommendations that I reiterate this year.

Q. What is your first recommendation?

A. As with last year, I recommend that the Company be required to determine and track margins from third-party sales. The reason I make this recommendation again is to provide a benchmark against which the Company (and this Commission) can determine whether making sales to third parties generates more savings for ratepayers than releasing pipeline capacity, savings which offset fixed costs of reserving capacity.

Q. What method do you recommend for determining and tracking margins from third-party sales?

A. The simplest method to create the data that would be used for benchmarking third-party sales, absent "pairing purchases to sales", is to calculate, by pipeline, a daily Weighted Average Cost of Gas (WACOG), plus a Weighted Average Fuel Loss percentage (WAFL%), plus a Weighted Average Transport Usage Cost (WATUC) to arrive at a Daily Delivered Gas Cost (DDGC). Then, using either a Weighted Average Sales Price (WASP) or individual sales price (ISP) of deals, the Company can calculate the "margin" on those third-party sales. In this way, margin equals WASP (or ISP) minus DDGC. This "margin", (which would be a per Dth amount) can then be measured against the market value of capacity release transactions for the same paths as those utilized for the third-party sales. This benchmarking could assure Company ratepayers that they are receiving the highest offsetting value for the reserved Company capacity.

Q. What is your second recommendation?

A. The second part of my renewed recommendation concerns the Company's use of the tracked margins (from my first recommendation) to monitor the Company's capacity release activity and, when appropriate (for example, when the Company has a choice of releasing capacity or making a third-party sale), the Company's use of estimated third-party sale margin opportunity to establish a reserve price for offered capacity.[6] In the day-ahead capacity release market, that market "clears", (*i.e.*, awards of released capacity are made) prior to the nomination deadline for day-ahead transactions. This means that fully-open, as well as pre-arranged, biddable deals "close" in time for the acquiring shipper to employ that capacity the following day. Using the calculated margin from

[6] Releasers of capacity, (*i.e.* the Company) can set a minimum or "reserve price", for the capacity they are offering. This reserve price can be set at any amount and can be kept secret (or not) under capacity release rules.

previous third-party sales to set the reserve price (again where appropriate), the Company can readily ascertain the typical contribution to fixed costs from these third-party sales (*i.e.*, this is the same contribution that capacity release revenue per Dthd released provides) and can use this as a guide to setting a reserve price for offered capacity when the two opportunities are present.

Q. **What is the benefit of establishing a reserve price?**

A. In short, if third-party sales contribute on average 4 cents to fixed costs, and setting the reserve price for capacity that would be released at 4 cents on biddable (or pre-arranged biddable deals) generates a greater contribution, the Company will know and will have the data to prove it is getting the most benefit for its ratepayers. In addition, because all non-Asset Management capacity release deals have a price, the Company can also get an indication from recent deals what the capacity is worth for setting the reserve price. By requiring the Company to track, monitor, and where appropriate establish, and report its reserve price, this Commission has an available tool to readily understand the value of the Company's available—*i.e.*, not used to generate power—pipeline capacity.

Q. Do you have any final conclusions?

A. Yes. In my opinion, based on my analysis of the Company's data in this proceeding, the Company has sufficient pipeline capacity in its existing portfolio to provide gas to its current gas-fired units and has some amount of additional capacity (approximately 51 Bcf annually) that it can "grow into" if needed. With dual-fueled capability to address the rare peak, it should not require any additional pipeline capacity to serve the needs of its ratepayers for the foreseeable future.

Q. **Does that conclude your testimony?**

A. Yes.

GML EXHIBIT 1

SkippingStone.

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Greg Lander, President
Skipping Stone LLC

Professional Summary:

As President of Skipping Stone Inc., Greg Lander is responsible for Strategic Consulting in the mergers and acquisition arena with numerous clients within the energy industry. Generally recognized in the energy industry as an expert, he has advised and/or given testimony at numerous Federal Energy Regulatory Commission (FERC), State, arbitration, and legal proceedings on behalf of clients and has advised as well as initiated standards formation before the Gas Industry Standards Board (GISB) (predecessor to the North American Energy Standards Board (NAESB)). As Founder, President, and Chief Technology Officer of TransCapacity Limited Partnership, he was responsible for conceiving, planning, managing, and designing Transaction Coordination Systems utilizing Electronic Data Interchange (EDI) between trading partners. As a founding member of GISB, he assisted in establishing protocols and standards within the Business Practices, Interpretations and Triage Subcommittees.

Professional Accomplishments:

- Handled all Due Diligence for purchaser (Loews Corp) in acquisitions of two interstate pipelines, one natural gas storage complex, and ethylene distribution and transmission systems (Texas Gas Transmission, Gulf South Pipeline, Petal Storage, Petrologistics, and Chevron Ethylene Pipeline) most in excess of $1 Billion. Developed purchaser's business case model, including rate/revenue models, forward contract renewal models, export basis modeling and revenue models, and operating cost and capex models. Coordinated Engineering and Environmental Due Diligence Teams integrating findings and assessments into final Diligence Reports.
- Assisted major electric retailer in 9 states with business case development for entry into North Eastern U.S. Commercial &Industrial natural gas marketing business. Identified market share of incumbents; retail registration process, billing processes; utility data exchange rules and procedures and developed estimates of addressable market by utility.
- Handled all economic Due Diligence for purchaser of large minority stake in Southern Star Gas Pipeline. Developed purchaser's business case model, including rate/revenue models and forward contract renewal models, assessed potential competitive by-pass of asset located in "pipeline alley", developed revenue models and operating cost and capex models. Coordinated Engineering, Pipeline Integrity, and Environmental Due Diligence Teams integrating findings and assessments into final Diligence Reports.
- Developed post-acquisition integration plans for inter-operability and alterations to system operations to take advantage of opportunities presented by

synergistic facilities' locations and functions and complimentary contractual requirements. Implementation of plan resulted in fundamental changes to systems operations and improvement in systems, net revenues, capacity capabilities, and facilities utilization.

- Handled all economic analysis, modeling, and systems capability due diligence for potential purchaser in several preliminary or completed yet un-consummated pre-transaction investigations involving Panhandle Eastern, Northern Border, Bear Paw, Florida Gas, Transwestern, Great Lakes, Guardian, Midwestern, Viking, Southern Star, Columbia Gas, Midla, Targa (No. Texas), Ozark, ANR, Falcon Gas Storage, Tres Palacios, Rockies Express, Norse Pipelines, Southern Pines, Leaf River, LDH (Mont Belvieu), Kinder Morgan Interstate, Trailblazer, Rockies Express and South Carolina Gas Transmission.
- Post Texas Gas Transmission and Gulf South Pipe Line acquisitions, assisted with all investigations involving assessments and proposals for realizing potential synergies with/from asset portfolio; rate case strategy development and alternate case development; and strategies around contract renewal challenges.
- Headed up due diligence team in acquisition of multi-state retail (residential) natural gas and electric book by Commerce Energy.
- Headed up due diligence team in acquisition of multi-state retail (C&I) natural gas book by Commerce Energy.
- Served as lead consultant for consortium of end-users, Local Distribution Companies, Power Generators, and municipalities in several major FERC Rate Cases, service restructuring, and capacity allocation proceedings involving a major Southwestern U.S. Pipeline.
- Served as lead consultant and expert witness for consortium of end-users, Local Distribution Companies, Power Generators, and municipalities in major FERC rate case under litigation involving decades-long disputes over service levels, cost allocation, and rate levels.
- Served as lead consultant for consortium of end-users and municipalities in major FERC rate case involving implementation of proposed rate design, cost allocation, and rate level changes.
- Expert witness in numerous gas and electric utility rate cases; integrated resource plans; litigated service offerings and cost approval and allocation proceedings for public interest clients. Controversies, often involving hundreds of millions to billions of dollars over cases' time horizons, are common.
- Developed and critiqued Rate Case Models for several pipeline proceedings and proposed proceedings (as consultant variously to both pipeline and shippers). Activities included modeling (and critiquing) new services' rates, costs, and revenues; responsibilities included development of various alternative cost allocation/rate designs and related service delivery scenarios.

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- Handled all market assessment, forward basis research, and transportation competition modeling for several proposed major pipelines and laterals, including two $1 Billion+ Greenfields projects that went into construction and operation providing new outlets for growing southwestern shale production. (Gulf Crossing and Fayetteville Lateral).
- Assessed supply and demand balance for Southwestern US (OK, TX, Gulf Coast and LA) including assessment of future demand and supply displacement associated with West Texas wind power development and its likely impact on pipeline export capacity from region.
- Assessed supply and demand balance for Northeast to Gulf Coast capacity additions including assessment of Gulf Coast demand and export growth and its likely impact on forward basis.
- Assessed start-up gas supply needs for Appalachian coal fired power plant, resulting in installation of on-site LNG storage and gasification to address lack of enough firm pipeline capacity to meet need.
- Assessed installed and projected wind-turbine capacity in ERCOT and its eventual impact on Texas electric market as wind power output approaches minimum ERCOT load levels.
- Designed and developed EDI based data collection system, data warehouse and web-based delivery system (www.capacitycenter.com) for delivering capacity data collected from pipelines to shippers, marketers, traders, and others interested in capacity information to support business operations and risk-management requirements.
- Assisted client in developing proposals to increase pipeline capacity responsiveness and proposed market fixes that would create price signals around sub-day non-ratable flows, including rate proposals, sub-day capacity release markets, and measures to address advance reservation of capacity for electric generation fuel to meet sub-day generation demands.
- Developed "universal capacity contract" data model for storage of all interstate capacity contract transactions from all interstates in single database.
- Led design effort culminating in FERC-mandated datasets defining pipeline capacity rights, (including receipt capacity, mainline capacity, delivery capacity, segmentation rights, in and out of path capacity rights), Operationally Available Capacity, Index of Customers, and Transactional Capacity Reports (through GISB).
- Assembled consortium of utilities to investigate and develop large high-deliverability salt storage cavern in desert southwest (Desert Crossing). As LLC's Acting Manager, was responsible for developing business case and economic models; handling all partner issues and reporting; coordinating all field engineering, facilities design, planning and siting; and managing all environmental, legal, engineering and regulatory activities. Wrote FERC Tariff. Brought project to NEPA Pre-Filing Stage and conducted non-binding Open

Season, as well as assisted with prospective shipper negotiations. Project cancelled due to 2001 "California Energy Crisis" and contemporaneous Enron and energy trading sector implosions.

- Designed comprehensive retail energy transaction and customer acquisition data model, process flow, and transaction repository for web-based customer acquisition and customer enrollment intermediary.
- Experienced in negotiation and drafting (from both seller side and buyer side) of firm supply, firm transportation, firm storage, and power supply and capacity agreements for numerous entities including project financed IPPs and for new greenfields pipeline and expansion of storage system.
- Provided market entry assessment for large international manufacturing and service company seeking to enter U.S. micro-grid, combined heat and power, and integrated solar, gas & battery markets.
- Conducted interstate pipeline capacity utilization analysis for New England following winter of 2013/2014 price fly-up.
- Conducted PJM East interstate gas pipeline capacity utilization and comparative analysis between pipelines with standard NAESB nominating cycles versus those with near hourly scheduling practices.
- Conducted requirements analysis for several firms pursuing software selection of energy transaction systems.
- Instrumental in the formation of the GISB. Member of industry team that lead the development of the proposal for and bylaw changes related to the formation of NAESB.
- Provided support to numerous clients and clients' attorneys in disputes involving capacity contracts, capacity rights allocations, tariffs, rate cases, intellectual property rights cases, and supply contract proceedings as both up-front and behind the scenes expert.

Associations and Affiliations:

Longest serving Member of Board of Directors for NAESB and prior to that GISB – 23 years.

GISB Committees: Former Chairman, Business Practices Subcommittee – drafted approximately 450+ initial industry standards that are now codified FERC regulations (Order 567); Former Chairman, Interpretations Subcommittee – drafted and led adoption process for first 50+ standards interpretations; Former Chairman, Triage Subcommittee; Title Transfer Tracking Task Force; Order 637 GISB Action Subcommittee; and industry Common Codes Subcommittee. Currently member of NAESB Wholesale Gas Quadrant Executive Committee and of NAESB Parliamentary Committee

Past and Affiliations and Associated Accomplishments:

1981-1989: One of five initial employees of Citizens Energy Corporation, Boston Mass. Responsible for starting and growing Citizens Gas Supply, one of the first independent gas marketers of the early 1980's, into $200MM+ annual operation. Successfully lobbied for pipeline Open Access (Orders 436 and 636), introduction of pipeline Affiliated Marketer rules of conduct (Order 497), and Open Access to pipeline operational information (Order 563).

1989-1993: Independent Consultant - Natural Gas Projects, Pipeline Rate Cases, Project Financed Contract negotiations, and Independent Power markets

1993 – 1999: Founder and President, TransCapacity Service Corp – Software products and services related to pipeline capacity trading, nomination, and contracting. Raised $17 MM from industry player to establish TransCapacity. Successfully lobbied for Pipeline restructuring and formation of capacity release market (Order 636). Sold to Skipping Stone.

1999 – 2004: Principal and Partner, Skipping Stone – Energy market consultants

2004 – 2008: President of Skipping Stone following purchase of Skipping Stone by Commerce Energy, Inc.

2008: Repurchased Skipping Stone from Commerce Energy, Reformulated Skipping Stone as LLC with Peter Weigand

2008 to Present: President and Partner, Skipping Stone. In addition to handling book of clients, responsible for all Banking, Accounting, Operations, Risk Management and contract matters for Skipping Stone.

Education:

1977: Hampshire College, Amherst, MA; Bachelor of Arts

Publication:

2013: Synchronizing Gas & Power Markets - Solutions White Paper

GML EXHIBIT 2

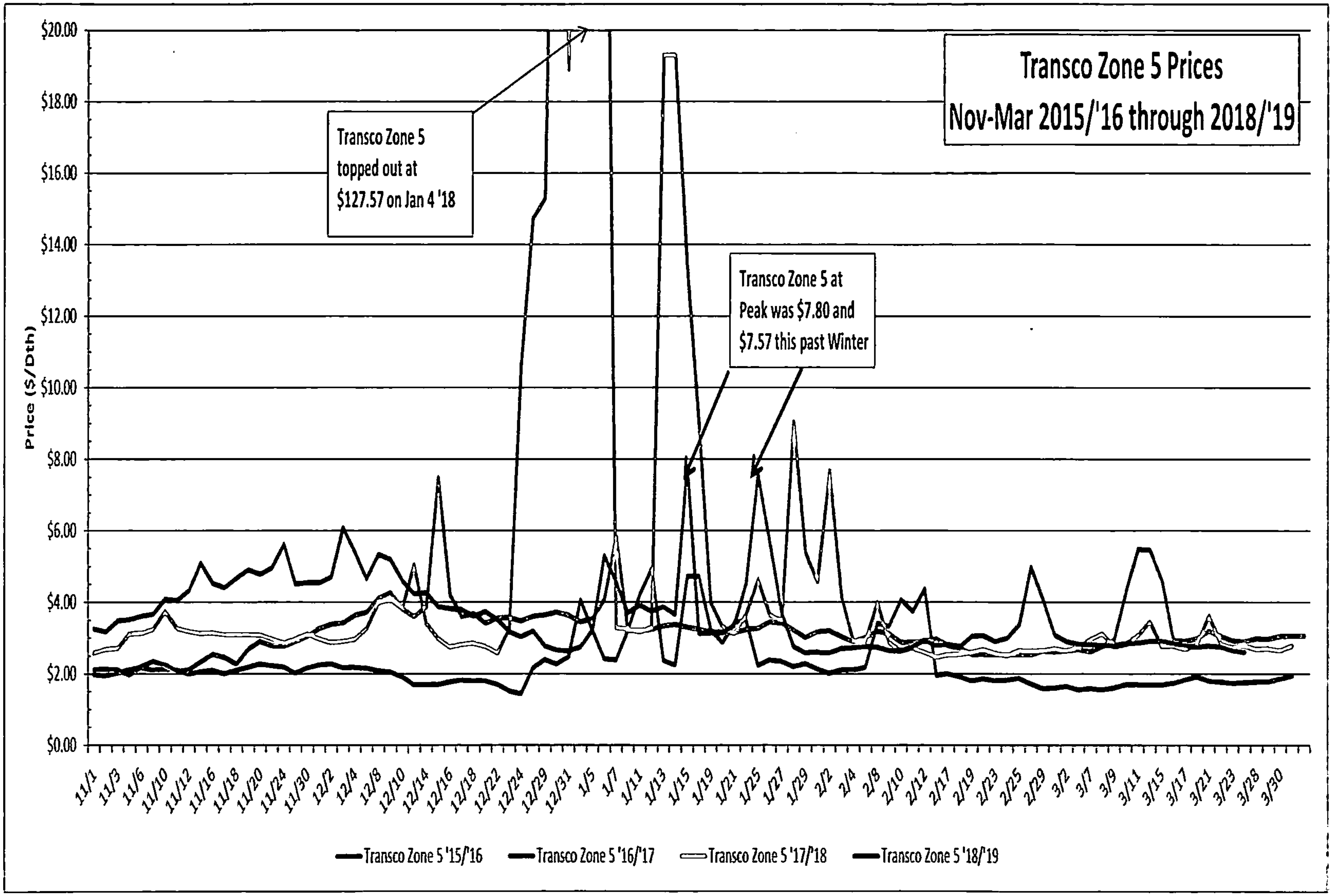
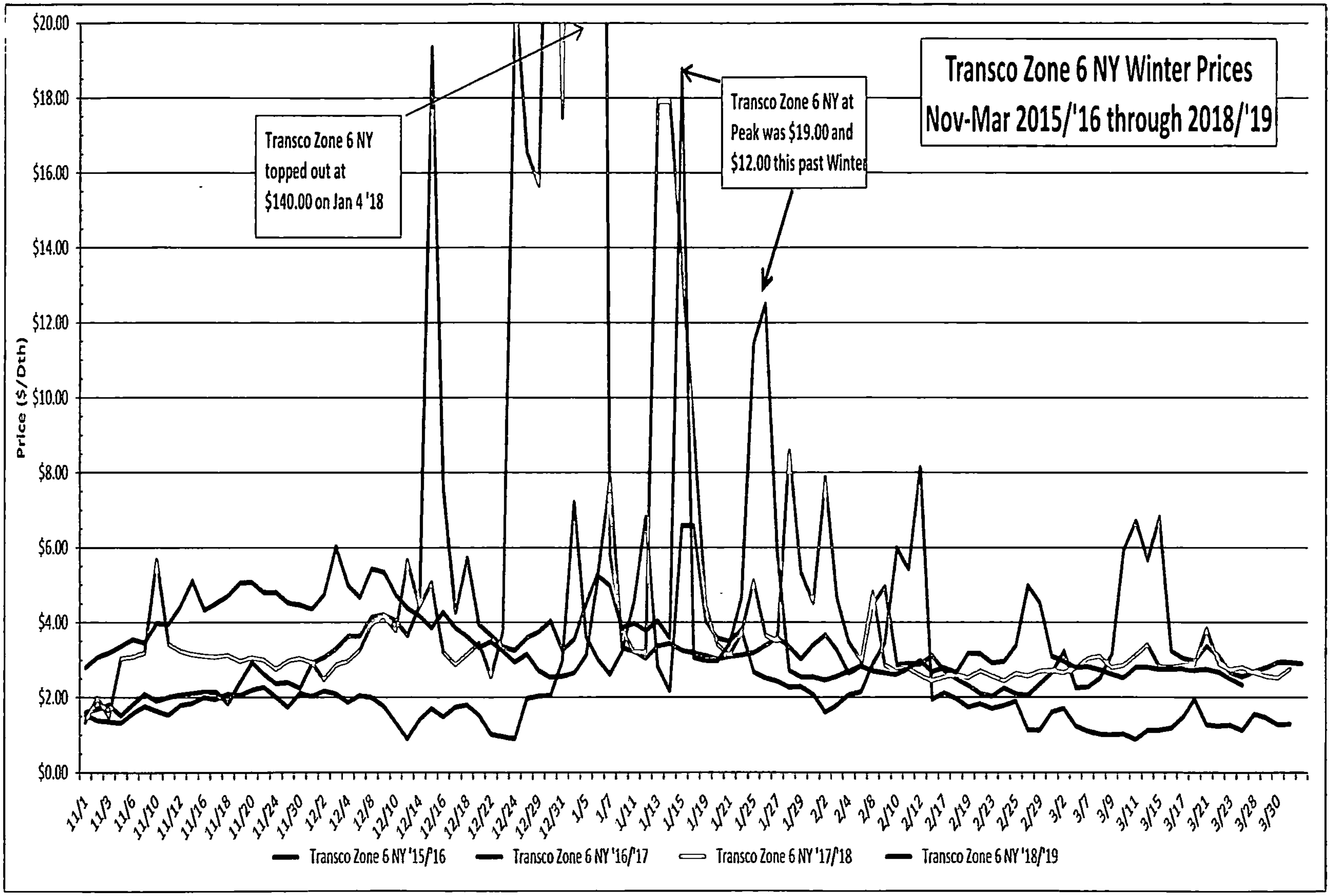

Transco Zone 5 Prices
Nov-Mar 2015/'16 through 2018/'19
Transco Zone 5 topped out at $127.57 on Jan 4 '18
Transco Zone 5 at Peak was $7.80 and $7.57 this past Winter
Price ($/Dth)
$20.00
$18.00
$16.00
$14.00
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$0.00
11/1 11/3 11/6 11/10 11/12 11/16 11/18 11/20 11/24 11/30 12/2 12/4 12/8 12/10 12/14 12/16 12/18 12/22 12/24 12/29 12/31 1/5 1/7 1/11 1/13 1/15 1/19 1/21 1/25 1/27 1/29 2/2 2/4 2/8 2/10 2/12 2/17 2/19 2/23 2/25 2/29 3/2 3/7 3/9 3/11 3/15 3/17 3/21 3/23 3/28 3/30
Transco Zone 5 '15/'16
Transco Zone 5 '16/'17
Transco Zone 5 '17/'18
Transco Zone 5 '18/'19

Figure 1


Transco Zone 6 NY Winter Prices
Nov-Mar 2015/'16 through 2018/'19
Transco Zone 6 NY topped out at $140.00 on Jan 4 '18
Transco Zone 6 NY at Peak was $19.00 and $12.00 this past Winte
Price ($/Dth)
$20.00
$18.00
$16.00
$14.00
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$0.00
11/1
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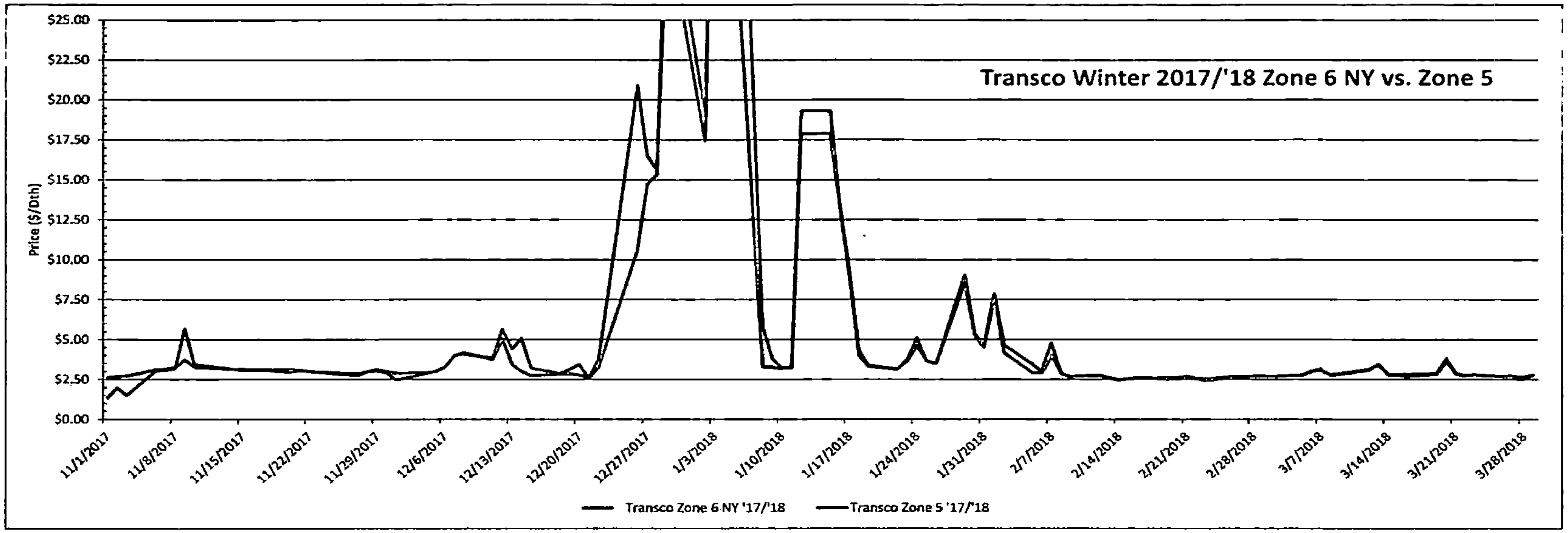
3/28
3/30
Transco Zone 6 NY '15/'16
Transco Zone 6 NY '16/'17
Transco Zone 6 NY '17/'18
Transco Zone 6 NY '18/'19

Figure 2



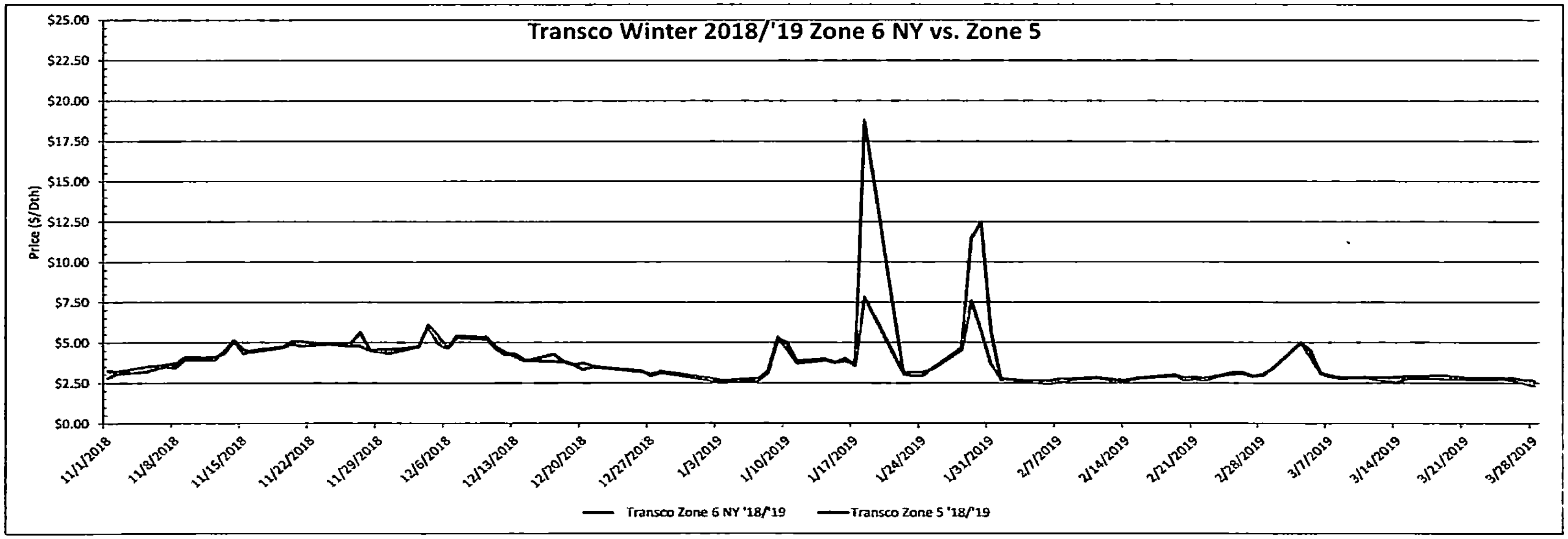


Figure 3

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CERTIFICATE OF SERVICE

I hereby certify that the following have been served with a true and accurate copy of the foregoing via first-class mail, postage pre-paid:

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William C Cleveland

William Cleveland
SOUTHERN ENVIRONMENTAL LAW CENTER

DATED: June 19, 2019