BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

IN THE MATTER OF THE APPLICATION OF QUESTAR GAS COMPANY TO MAKE TARIFF MODIFICATIONS TO CHARGE TRANSPORTATION CUSTOMERS FOR PEAK HOUR SERVICES	Docket No. 17-057-09

REBUTTAL TESTIMONY OF WILLIAM F. SCHWARZENBACH III

FOR DOMINION ENERGY UTAH

August 25, 2017

DEU Exhibit 4.0R

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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is William Frederick Schwarzenbach III. My business address is 333 South State Street, Salt Lake City, Utah.

Q. By whom are you employed and what is your position?

A. I am employed by Questar Gas Company dba Dominion Energy Utah (Dominion Energy or Company) as the Manager of Gas Supply. I am responsible for state Gas Supply matters in Utah and Wyoming. My qualifications are included in DEU Exhibit 4.1R.

Q. Please describe your experience relevant to this docket?

A. I have worked for Dominion Energy for almost 13 years. During this time I have worked in the System Planning group within Engineering and the Gas Supply department. I have a detailed understanding of the system modeling used to evaluate the need for Firm Peaking Services and the knowledge of services offered by upstream pipelines. The past few years, I have also been responsible for producing the Company's Integrated Resource Plan (IRP). As Manager of Gas Supply I am also directly involved in the daily management of purchasing and nominations of gas supply.

Q. Have you testified before this Commission before?

A. Yes. I testified in Utah Docket No. 14-057-31 and I have presented numerous times in technical conferences and workshops.

Q. Attached to your written testimony are DEU Exhibits 4.1R through 4.4R. Were these prepared by you or under your direction?

A. Yes.

Q. What is the purpose of your testimony in this Docket?

A. The purpose of my testimony is to rebut testimony of Howard E. Lubow, Douglas D. Wheelwright and Neal Townsend. I will explain the need for Peak-Hour Services on the Dominion Energy system, discuss alternative services available to meet this need, and discuss the impact of transportation customers, including Lake Side power plant, on the peak-hour demand.

II. NEED FOR PEAK-HOUR SERVICES

Q. Mr. Lubow argues that he has never seen any literature or industry practice consistent with planning system requirement on an hourly basis. Have you seen any industry standards or practices that support hourly planning?

A. Yes. The Federal Energy Regulatory Commission (FERC) and the North American Energy Standards Board (NAESB) have been focused on coordination between natural gas and electricity markets for the last five years. Regulations have been changed over that time to give wholesale and retail gas markets the flexibility to adjust for variability throughout the day. Hourly planning is part of this solution.

Q. Please provide some background on this coordination.

A. On February 3, 2012, FERC Commissioner Moeller requested comments on coordination between natural gas and electricity markets. Many parties, including NAESB, submitted comments on April 16, 2015. After hearing public comments, the FERC issued Order Number 809 "Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities". This order revised FERC regulations to better coordinate the scheduling of wholesale natural gas and electricity and increased reliance on natural gas for electric generation as well as to provide additional scheduling flexibility to all shippers on interstate natural gas pipelines.

Q. Was this discussion of interest to the Company?

A. Yes. In addition to Lake Side, we serve several electric generators representing over 10,785,000 Dths per year based on 2016-2017 usage. We were involved in the NAESB proceedings and share the industry concern of preserving and enhancing system reliability for all customers.

Q. Mr. Lubow argues that a local distribution company (LDC) does not need to worry about planning supply requirements on the basis of a peak hour because pipelines provide for a certain level of variation in the delivery of peak day nominations. Was this issue discussed in FERC order 809?

A. Yes. On page 4 of the Order the FERC states "Except for special services, pipeline services are generally based on the assumption of uniform hourly flows over the Gas Day. During much of the year, most interstate pipelines can accommodate significant variations in hourly flow rates. However, during high demand periods when pipeline capabilities are being fully utilized to provide firm transportation services, a pipeline may announce a critical notice period, where shippers are expected to stay in balance. Some pipelines offer enhanced services that permit subscribing shippers more variable hourly flow rates".

Q. Are you aware of whether or not upstream pipeline capabilities are being fully utilized as described above?

A. Yes. Dominion Energy's system generally has "flow control" at the interconnecting gate stations with Kern River Gas Transmission Company (Kern River). Flow control ensures that the supply is delivered on a ratable hourly basis.

The Company's gate stations that interconnect with Dominion Energy Questar Pipeline (DEQP) have "pressure control". Pressure control allows supply from the DEQP to fluctuate to match the demand on the Dominion Energy system while maintaining a set pressure. Dominion Energy and DEQP engage in an annual Joint Operating Agreement planning

process. During that process in 2015, DEQP indicated that its system would not be able to meet the increasing demand fluctuations necessary to maintain adequate pressures for the Dominion Energy system on a firm basis.

Q. Mr. Platt has provided evidence that the hourly system demand will exceed daily average capacity available on a design peak day. Is this occurring on an actual basis as well?

A. Yes. Exhibit 4.2R shows an approximation of the hourly deliveries to the Dominion Energy system vs. the total contracted transportation capacity over the past few years. The red line shows the daily average capacity, also known as the Required Daily Capacity (RDC) on both Kern River and DEQP. The purple line shows the total hourly flow from both pipelines. As the load on the Dominion Energy system has increased, the actual hourly deliveries have started to exceed the RDC. Any deliveries that exceed the RDC are subject to pipeline operational capacity availability and are not available on a firm basis.

Q. How will peak-hour services ensure that the Company can maintain reliable service on the peak hour of a design peak day?

A. The Peak-Hour Services offered by upstream pipelines are an example of the "enhanced services" referred to by the FERC in order 809. These services allow the upstream pipelines to make facility or operational changes to reserve capacity to provide subscribing shippers variable hourly flow rates on a firm basis.

Q. Mr. Wheelwright states that "the source of the 'peak hour' problem appears to be Dominion Questar Pipeline's inability to provide firm delivery to meet the hourly demand". Is this DEQP's problem?

A. No. It is Dominion Energy's problem. Section 11.9 (a) of the DEQP tariff states that "a shipper shall use reasonable efforts to deliver and receive gas at uniform hourly and daily rates of flow". (Dominion Energy Questar Pipeline, LLC FERC Gas Tariff Section 11.9.). Any fluctuations to hourly and daily flows are managed on the pipeline on an operationally

available (as opposed to firm) basis. Firm Peak-Hour services will allow the Company to fluctuate to a higher contract limit during peak hours when the gas is needed most.

Q. Mr. Townsend argues that "Dominion/QGC has been operating without such a service for decades". Is that true?

A. He is correct. However, in 2015, during the Joint Operations Agreement planning process, DEQP notified Dominion Energy that Dominion Energy's design peak day demand would exceed the RDC. In fact, DEQP would not have capacity operationally available to meet the customer demands during a peak hour on a design peak day. DEQP made clear that No-Notice Service does not provide for flows above the RDC on a firm basis.

As Mr. Mendenhall explains in his testimony, in December of 2015, the Company notified the Commission of the concern. The Company also immediately began seeking solutions to ensure that it could provide reliable service on a firm basis during the peak hour of a design peak day.

Q. What will happen if an upstream pipeline does not have the capacity to serve increased demand during peak-hours?

A. If a pipeline reaches capacity and cannot provide flow above the RDC during peak hours, customers, including Dominion Energy, would be asked to reduce flows to match scheduled nominations. This is standard practice throughout the industry and has been occurring regularly in the winter and summer on Kern River.

If flows were to be reduced to match daily scheduled volumes from the upstream pipelines, the demand on the system during the peak hour would exceed the supply coming into the system. As Mr. Platt explains in his testimony, this would cause pressures on the Dominion Energy system to drop and could result in the loss of service to customers throughout the system.

Q. Is there a way for Dominion Energy to get priority over others shippers if this type of event were to occur?

A. Yes. Contracting for Firm-Peaking Services will require the pipeline to reserve capacity and provide increased flows during peak hours on a firm basis. This will insure Dominion Energy receives this service while other shippers will be asked to limit their usage.

Q. Would this service work effectively on both Kern River and DEQP?

A. Yes. DEU Exhibit 4.3R shows how the firm peaking services from Kern River and DEQP will be used to manage peak-hour demand. This exhibit is a chart indicating supply and demand on the Dominion Energy system on a design peak day. The chart shows a full gas day, which runs from 8:00 a.m. to 8:00 a.m. the next day. The chart also shows the eight hours prior to the gas day to show the full impact of the peak hour period. The black line indicates the expected non-ratable (fluctuating) flows to the Dominion Energy system. The red line indicates the ratable (average hourly) scheduled volumes from the upstream pipelines.

The blue shaded area represents firm ratable supply being delivered from Kern River. The purple shaded area indicates the non-ratable supply being delivered from Kern River as part of the Firm-Peaking Service. Since the Kern River interconnects are flow controlled, the firm-peaking service provides for set flow increases during peak hours**.** Kern River allows Dominion Energy to "store" gas on the Kern River pipeline through linepack and withdraw that supply from linepack during peak hours.

The yellow shaded area represents firm supply being delivered from DEQP. The green shaded area represents the supply adjustments being made on a firm basis as part of the Firm-Peaking Service from DEQP. The service on DEQP would allow increased deliveries during the peak hours. In order to provide this service, DEQP will reserve and utilize capacity on Overthrust Pipeline along with variable storage withdrawals to increase linepack on its

system that can be used to meet Dominion Energy's fluctuating demand requirements. These resources would not be available without a contract for a firm Peak-Hour Service.

Q. Mr. Lubow points out that no firm customers were curtailed during the near-peak event of 1990. Is this an accurate comparison to determine what would happen under similar conditions going forward?

A. No. The Dominion Energy system is much different today than it was in 1990. For instance, Dominion Energy had no firm transportation customers in 1990. As a result, on that cold day in 1990, all transportation customers were curtailed. Also, since 1990 the FERC passed order 636 which effectively unbundled all of the services that pipelines provide to utilities.

As DEU Exhibit 1.8R shows, the Dominion Energy system has seen significant growth in demand from 1990 through 2017. The pipelines serving the Dominion Energy system have also experienced significant growth in this period. These factors have resulted in significant differences in how these systems can operate from 1990 through the present. I would expect under peak conditions that upstream pipelines would be stressed, and as a result, would limit shippers flow based on their FERC approved tariffs.

Q. What evidence do you have to support that expectation?

A. This expectation is based on my professional experience. During recent high flow events that were not design-peak events, upstream pipelines have sent out many notices limiting shippers to match their deliveries to scheduled volumes. These notices have come frequently during both summer and winter high flow events.

Q. Parties have observed that Dominion Energy intends to contract for additional Firm-Peaking Services with DEQP. Is this accurate?

A. Yes, in the spring of 2016, Dominion Energy issued a Request for Proposal (RFP) to interested parties for proposals for services that could help it meet the peak hour demand. The Company received three responses. One response was from Kern River, one from

DEQP, and one from Magnum storage. Magnum storage is currently not available and the Company pursued the two available upstream pipeline firm peak-hour options.

Q. Mr. Townsend cautions the Commission to "be very wary of new revenue-enhancing schemes proposed by Dominion/QGC for the benefit of its Dominion corporate parent." How do you respond?

A. Until FERC Order 636 in 1993, Questar Gas and Questar Pipeline were one Company and one system. As a result the pipeline was developed and designed to serve Questar Gas customers. The fact is, Dominion Energy Utah needs Dominion Energy Questar Pipeline to serve its more than 1,000,000 customers. In some instances, DEQP is uniquely situated to serve DEU, and there are no other alternatives.

Q. Please provide an update on the DEQP Firm Peaking Service.

A. As explained in the June 27, 2017 technical conference in Docket No. 17-057-12, the Company entered into a Precedent Agreement for Firm-Peaking Service. On August 18, 2017, the FERC approved DEQP's proposed Firm-Peaking tariff.

Q. Why did the Company sign up for 100,000 Dth per day of Firm-Peaking Service from Kern River and why will the Company contract for 250,000 Dth per day of Firm-Peaking Service from DEQP?

A. As explained in the February 28, 2017 IRP workshop, due to take-away constraints, 100,000 Dth is the maximum amount that can be used from Kern River. The 250,000 Dth per day from DEQP will be used to meet the remaining peak hour demands of the Wasatch Front as well as the peak-hour demands for all of the other areas served only from DEQP. The Company will have additional take away capacity from a new Kern River gate station in 2019. At that time the contract expands to 115,000 Dth per day in order to meet the growing peak-hour demand.

III. PEAK HOUR SOLUTIONS

Q. Mr. Lubow suggests that Dominion Energy has more economical options for meeting the Peak need. He suggests that purchasing firm transportation capacity on Kern River would "produce the most economical cost of incremental capacity." Do you agree?

A. No. Dominion Energy has spent a great deal of time analyzing the peak-hour needs and evaluating alternatives to meet these requirements. As described in more detail in the Dominion Energy 2016-2017 IRP and in the Dominion Energy 2017-2018 IRP, the Company considered the following solutions (separately or in combination): 1) upstream hourly services that can be offered to provide supply to match the demand swings, 2) demand response programs, 3) contracting for additional firm upstream transportation capacity, 4) purchasing excess supply to meet peak demand, 5) facility improvements and 6) the building of a liquefied natural gas (LNG) facility.

Q. Please compare Mr. Lubow's proposal to the Company's planned use of firm-peaking service on Kern River.

A. Mr. Lubow suggests the use of firm transportation capacity on Kern River. The Kern River Firm-Peaking Service for 25,000 Dth allows the Company to flow 4,167 Dth/hr during the 6 peak hours (25,000/6 = 4,167). In order to get the same 4,167 Dth/hr flow on a standard transportation capacity contract, the contract would need to be for 100,000 Dth/day (4,167 x 24 = 100,000). This Firm-Peaking Service for the term of Nov 15, 2017 through Feb 14, 2018 will cost the company $864,569. Equivalent Firm Transportation Service on Kern River, at the reduced Period 2 rate of $0.2018 per dth, would cost $1,836,380 for the same period. At the lower DEQP rate of $0.17652 per dth, this would still cost $1,606,332.

Q. Would Dominion Energy incur any other costs with the strategy suggested by Mr. Lubow?

A. Yes. Since the firm peaking service allows for flow only during the 6-hour peak-hour period, it also only requires the purchase of supplies that will be used during those hours, in this case 25,000 Dth. The use of a standard firm capacity contract would require the purchase of the full 100,000 Dth each day to achieve the same flow rate during the peak hours. The 75,000 Dth of excess supply would then have to be moved to storage in later cycles, or through the use of No-Notice Transportation. Assuming a gas price of $3.00 on a peak day, this excess supply could cost an additional $225,000 each day.

Q. Mr. Wheelwright suggests that Dominion Energy should use intraday nominations to "address a portion of this problem." What concerns do you have with this solution?

A. Intraday nominations are an option for managing supply changes on an intraday basis, however, there are two issues with this solution. First, this would require the use of transportation capacity as described above. A comparison of transportation requirements for peak day vs. peak hour are shown in red on Exhibit 4.4R. This exhibit illustrates some of the problems associated with Mr. Wheelwright's proposal. As described above, this would not be the most economical alternative. Second, the intraday cycle change times do not match the timing of the demand increases on the system and would not work well to meet the need operationally.

Exhibit 4.4R shows the relation of the NAESB flow times and the typical demand profile on the Dominion Energy system. On the graph in Exhibit 4.4R the black line shows a typical non-ratable flow profile to the Dominion Energy System. The yellow shaded area represents the supply nominated for the start of the NAESB gas day. This amount would have to match the peak-hour flow in order to reserve the transportation capacity and ensure firm supply availability. This volume could be reduced using the intraday 1 (ID1) cycle of the NAESB gas day. The dark blue shaded area shows that this flow change will start at 1:00 PM. The next flow change could be made using the intraday 2 (ID2) cycle. The green shaded area

shows that this flow change will start at 5:00 PM. The next flow change could be made using the intraday 3 (ID3) cycle. The purple shaded area shows that this flow change will start at 9:00 PM. This will be the last opportunity to make changes for the gas day.

Since purchased volumes cannot be reduced once they are made for the day, the changes that are made to reduce flows to the Dominion Energy system must be accompanied by nominations to move the excess volumes to storage. The volumes being moved to storage are shown with the light blue shaded area. This strategy also will result in volumes being delivered to the city gate in excess of demand at times throughout the day. This is evident any time the shaded areas of the graph are above the black line.

With this strategy, there would be additional supply that would need to be purchased. This supply would have to be moved to storage in later cycles. This would still result in packing the system for most of the day. This could create operational issues on the system.

Q. Mr. Lubow also suggests that "During Periods of peak demand, the Company can also draw from its storage facilities." Is this a potential solution?

A. No. Unlike many local distribution companies, Dominion Energy contracts for storage at facilities that are not located on-system. The location of these facilities means that the use of storage withdrawals on a firm basis require the withdrawals to be scheduled using firm capacity. Again, this would result in the costs described above and have the deliveries subject to the NAESB flow times as also described above.

Q. Are there storage services that would not be subject to these restrictions?

A. Yes. On-system storage would provide the benefits described by Mr. Lubow. This is a resource that is common throughout the industry.

Q. Would Firm-Peaking Service be subject to these same restrictions?

A. No. The Firm-Peaking Services are designed to allow the pipelines to provide firm service and are not subject to the same limitations as standard firm transportation service.

Q. Does this service also provide benefits on non-peak days?

A. Yes. Dominion Energy used the Kern River Firm Peaking Service during the 2016-2017 heating season to allow the company to make supply adjustments at Hunter Park outside of the NAESB cycle flow times. This allowed the Company to adjust supply to better match the demand on the system with flows from Kern River. Otherwise, the Kern River stations that serve the main Dominion Energy system are generally held constant through the day.

Q. Mr. Lubow states that he is "not aware of a gas planning process to design upstream transmission requirements based on peak hour conditions." Are you aware of any natural gas utilities that plan for peak hour conditions?

A. Yes. A number of similar utilities including, Colorado Springs Utilities, Northwest Natural, Cascade Natural Gas, and FortisBC all plan for peak-hour conditions based on their resource plans. Those plans are publically available on the internet.

Colorado Springs Utilities, for example, states in its IRP, "The 2014 peak-*day* demand forecast indicates the existing upstream supply resources, including Colorado Springs Utilities' Propane Air Plant capacity, will become deficient in the 2020-2021 heating season. The peak-hourly demand deficiency occurs even earlier in the 2017-2018 heating season".

FortisBC, in their 2014 Long Term Resource Plan, states that "Core demand varies on an hourly basis and typically exhibits a morning peaking period between 6 and 10 am and an evening period between 5 and 9 pm. The peak hour demand for these customers can be as much as 40% above the hourly average of the daily demand".

Q. Have any other parties shown interest in Peak-Hour Services?

A. Yes. The Environmental Defense Fund (EDF) filed comments to the FERC related to Docket No. AD17-12-000. In these comments they argue that Peak-Hour Services will be beneficial to power generators. They state: "Non-ratable flows are the operational but not the commercial norm, and demand for, and the value of, flexible flows are increasing. While pipelines endeavor to provide more flexible flows, they are primarily provided at the prerogative of pipelines and thus are often unavailable during constrained or peak periods. These points all suggest the need for pipelines and market participants to delineate and price shaped flows". They cited the following: *Portland Natural Gas Transmission System*, 106 FERC ¶ 61,289 at P 52 (2004) ("Portland asserts that this 'flexibility' is not part of Portland's firm service obligations, but has been extended on a best-efforts basis as an accommodation to FT shippers. Portland maintains that it has made clear to the Generators, in written correspondence and otherwise, that this flexibility was provided by Portland as a 'courtesy' with the expectation that the Generators would endeavor to adhere to the tariff's uniform take provisions.").

Q. Are similar Peak-Hour Services offered by other interstate pipelines?

A. Yes. Similar Peak-Hour Services are offered by other natural gas pipeline such as Panhandle Eastern Pipeline Company, Gulf Crossing Pipeline Company, Gulf South Pipeline Company, and El Paso Natural Gas Company.

Also Equitrans, L.P. (Equitrans) recently had a similar service's rate schedule was accepted to be included in their FERC Gas Tariff. In their filing Equitrans states the following as its "Nature, Reason and Basis for Filing".

> "In response to the increase in natural gas consumption by the electric generation market, as well as existing customer interest for firm hourly flow flexibility and the ability to negotiate receipt and/or delivery pressures, Equitrans is proposing to amend its Tariff to

> implement a new Enhanced Firm Transportation Service to be provided pursuant to Rate Schedule EFT. The proposed service will allow Equitrans to provide additional firm hourly flexibility for Customers. The contractual right to hourly flexibility contemplated by this filing is in addition to, and not in lieu of, current undefined hourly flexibility provided on Equitrans' transmission system under Rate Schedules FTS or STS-1 on an undefined basis. The proposed service will complement Equitrans' existing firm and interruptible services and offer new opportunities for customers. In addition, Equitrans' proposed Enhanced Firm Transportation Service is consistent with other pipeline and storage companies' Commission-approved tariff provisions that offer enhanced firm transportation services."

Q. How else do other utilities meet their peak-hour needs?

A. Many utilities use on-system storage to meet their peak hour needs.

Q. Mr. Wheelwright states that "It is unclear to the Division why there is a need for both no-notice service and the peak hour service when the no notice service and the peak hour service appear to be providing the same or similar services. The Company has not provided sufficient information concerning the difference between these services or why both are needed." Can you clarify the difference between these services and explain why they are both necessary?

A. No-Notice Transportation service is a service that provides for nomination adjustments to manage daily imbalances. This service adjusts nominations using storage services only when operationally available. This service does not reserve capacity on the pipeline and will not ensure that additional firm capacity is available when needed.

Firm-Peaking Services are firm services that allow the pipeline to reserve capacity on the pipeline to meet the increased Dominion Energy supply requirements experienced during peak hours. The upstream pipelines may have to add facilities or change the operation of their pipeline in order to provide this service. They are not able to provide these services to individual customers on a firm basis without offering a specific rate schedule.

IV. TRANSPORTATION CUSTOMER IMPACT ON PEAK-HOUR DEMAND

Q. Mr. Townsend states that "Firm transportation customers are not the cause of Dominion/QGC's alleged need for firm peaking service." Do you agree with this statement?

A. No. Transportation customers currently do not use their gas evenly throughout the day, and as a result, they contribute to the increased demand during peak hours. Please see Mr. Mendenhall testimony (DEU Exhibit 1.0R) for details regarding hourly usage by transportation customers.

Q. Is there a way to ensure that transportation customers do not contribute to the peak hour demand increases?

A. Yes. Flow control equipment can be installed at the customer meters. This would allow Dominion Energy's Gas Control department to physically restrict customer usage to match nominations if necessary and guarantee a customer did not contribute to increased usage during peak hours. Mr. Mendenhall has offered alternative tariff language providing flow control as an option for larger TS Customers who do not want to pay for Firm-Peaking Service.

Q. Mr. Wheelwright states that "Lake Side plant has contributed to the increase in the peak hour usage." Do you agree?

A. Yes, however, Dominion Energy's Gas Control department already has the ability to control flows to the Lake Side power plant. Therefore, if necessary, Dominion Energy could limit their usage to match their nominations any time it becomes necessary.

Q. Does this conclude your testimony?

A. Yes.

State of Utah)

) ss.

County of Salt Lake)

I, William Schwarzenbach, being first duly sworn on oath, state that the answers in the foregoing written testimony are true and correct to the best of my knowledge, information and belief. Except as stated in the testimony, the exhibits attached to the testimony were prepared by me or under my direction and supervision, and they are true and correct to the best of my knowledge, information and belief. Any exhibits not prepared by me or under my direction and supervision are true and correct copies of the documents they purport to be.

_____

William Frederick Schwarzenbach III

SUBSCRIBED AND SWORN TO this _____ day of August, 2017.

_____

Notary Public