BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

IN THE MATTER OF THE REQUEST OF DOMINION ENERGY UTAH FOR APPROVAL OF A VOLUNTARY RESOURCE DECISION TO CONSTRUCT AN LNG FACILITY	Docket No. 18-057-03

DIRECT TESTIMONY OF MICHAEL L. GILL

FOR DOMINION ENERGY UTAH

April 30, 2018

DEU CONFIDENTIAL Exhibit 5.0

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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Michael L. Gill. My business address is 1140 West 200 South, Salt Lake City, UT 84104.

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

A. I am employed by Dominion Energy Utah (Dominion Energy, DEU, or Company) as the Manager of Engineering. I am responsible for the High-Pressure (HP) Engineering, Intermediate High-Pressure (IHP) Engineering, Integrity Management, Survey and Design Drafting Departments. I serve as Project Manager for evaluation of the Company's proposed Liquefied Natural Gas (LNG) facility. My qualifications are included in DEU Exhibit 5.01.

Q. Have you testified before this Commission before?

A. No, although I have presented at technical conferences and workshops on multiple occasions.

Q. Attached to your written testimony are DEU Exhibits 5.01 through 5.08. Were these prepared by you or under your direction?

A. Yes.

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to describe the proposed LNG facility and to discuss the methodology the Company used to evaluate and preliminarily design the proposed LNG facility. I will address the preliminary design, costs, contracting and construction schedule associated with the proposed LNG facility.

II. THE PROPOSED LNG FACILITY

Q. Please describe the facility that the Company proposes to build.

A. The Company proposes to build an on-system LNG storage facility near Magna, Utah. The preliminary specification of the facility calls for construction of a 15 million gallon LNG storage tank, an amine gas-pretreatment process, a liquefaction cold box, and gas vaporization facilities. The proposed liquefaction rate is 8.2 MMcfd and the proposed vaporization rate is 150 MMcfd (approximately 150,000 Dth/day).

III. LNG FACILITY DESIGN CONSIDERATIONS

Q. Did the Company utilize a consultant to conduct analysis and preliminary design activities related to the proposed LNG facility?

A. Yes, in February 2016 DEU began preliminary analysis to determine if an on-system LNG facility was viable. It sent out a request for proposal (RFP) for engineering services to conduct a site evaluation in order to determine potential sites for the construction of an LNG facility, as well as preliminary engineering and design for an LNG facility. DEU received responses to this RFP from 16 companies.

After evaluating the responses, the Company contracted with HDR Incorporated (HDR) located in Pooler, GA to conduct a Site Evaluation. HDR was founded in 1917 and is headquartered in Omaha, Nebraska. Currently, HDR employs more than 10,000 employees and has more than 225 locations worldwide. HDR has over 35 years of experience in providing design and construction services for LNG Facilities. The Company identified four potential sites for evaluation by HDR as part of the site evaluation study. Based on HDR's analysis, the Company identified a preferred site for a pre-Front End Engineering Design (FEED) study.

As discussed in greater detail below, the Company learned that the initial property was not available and tasked HDR with conducting a pre-FEED study on a second piece of property. The pre-FEED study revealed that the second location provided a viable option for the construction of an LNG facility. Then, in order to thoroughly evaluate the LNG facility as an option, the Company needed reliable information about the costs of such a facility. At the Company's request, HDR then conducted a FEED study for the selected site.

Q. Has the Company selected a site for the proposed LNG facility?

A. Yes. As I mentioned above, once DEU had information from HDR related to site requirements, DEU's System Planning and Analysis group worked with HDR to identify sites for evaluation. The initial analysis resulted in four possible sites for the facility, based on each site's proximity to DEU HP facilities, as well as its ability to meet code requirements for vapor dispersion, thermal radiation and proximity to airport runways. HDR utilized a grading system to rank the sites. Based on this ranking, the Company began conducting diligence on two of the four properties to determine the extent of the investment that would be required to acquire them. Each site was approximately 160 acres in size. The first and highest graded site was located in the southwest corner of the Salt Lake valley near Butterfield Canyon. However, the property owner made clear that the land was not available for purchase. While the Company could have considered the option of condemning the property, it instead approached the owner of the second site. The second site is near Magna, Utah and is available for purchase from [redacted] After it became clear that the property would be available, the Company commissioned HDR and completed a FEED study for this site.

Q. What were the main deliverables of the FEED study?

A. The primary objective of the FEED study was to produce sufficient project definition so that concise engineering, procurement and construction (EPC) contract documents could be developed. The scope included preliminary sizing of all equipment and piping, development of process plans, preliminary site and grading plans, preliminary permitting, and preliminary site utility plans. By having concise documents and eliminating the unknowns from the project, the Company was able to develop a refined cost estimate and prepare the project for bidding.

Q. What is the role of the EPC contractor?

A. The EPC contractor is responsible for the final engineering of the project, the procurement of all materials associated with the facility and the construction of the facility. The final engineering documents are developed using the specifications and

processes detailed in the FEED study. A copy of the FEED study is attached as DEU Confidential Exhibit 5.02, without appendices.

Q. What size of LNG facility did the Company analyze with the FEED study?

A. After consultation with HDR and internal discussions with DEU's Gas Supply and System Planning and Analysis groups, the Company selected the following LNG facility sizing parameters for the FEED study evaluation:

Liquefaction Rate: 8.2 MMcfd (approximately 8,200 Dth/day)
Storage Capacity: 15 Million Gallons
Vaporization Capacity: 150 MMcfd (approximately 150,000 Dth/day)

The vaporization capacity of the facility was determined by DEU's Gas Supply and System Planning and Analysis Department. System Planning analyzed how much could reasonably be taken onto the Company's system at the specified sites, and determined that 150 MMcfd is the maximum volume that the system can effectively utilize at that location. The chosen rate of vaporization coincides with the curtailed volumes of recent supply shortfalls. The tank size was chosen both to achieve the capacity described above, and to minimize costs. The selected tank size is typical for a project of this nature. Larger or custom tanks would cost significantly more than the selected tank. The liquefaction rate was based on utilizing "standard" equipment sizing for a project of this nature as well as determining the rate in which the tank could be filled. Based on the selected liquefaction rate of 8.2 MMcfd, it would take approximately 100 days to completely fill the proposed LNG storage tank.

Q. Please describe liquefaction.

A. Natural gas can be converted into a liquid by cooling it to -260 degrees Fahrenheit. Before the gas enters the cooling process however, impurities and heavy hydro-carbons must be removed. The design presented in the FEED study contemplates utilizing an amine pre-treatment system to purify the gas. The FEED design has also specified the use of a liquid nitrogen refrigeration system. The "liquefaction process" describes the entire process of cleaning, compressing, and cooling the gas into a liquid form. At the end of this process the liquefied gas stored in the tank is essentially 100% methane.

Q. How is LNG "vaporized"?

A. LNG is converted back into a gaseous form by pumping LNG from the storage tank and heating the natural gas by passing it through a series of heat exchangers. Prior to putting the vaporized natural gas back into the distribution system it must be re-odorized. The "vaporization process" describes the entire process of pumping LNG from the storage tank, heating it and converting it back to a gaseous form, and re-odorizing it.

Q. In addition to capacity evaluation, did the FEED study evaluate different processes for the LNG facility?

A. Yes. The FEED study evaluated and recommended options for pre-treatment, liquefaction and storage of LNG at the Magna location. This included examining gas pre-treatment systems (amine vs. mol-sieve), liquefaction methods (nitrogen vs. mixed-refrigerant), and tank type (full containment vs. single containment). The Company and HDR worked together to analyze each of these criteria to determine the best solution for the project.

Q. What diameter size, pressure and length of pipeline would serve the proposed Magna LNG facility?

A. The Company has determined that it would be best for the Magna facility to be tied to the Company's high pressure (HP) system via a 14-inch diameter HP line. This line would be approximately [redacted] A schematic of the proposed piping layout is shown in DEU Confidential Exhibit 5.03.

Q. Ms. Faust and Mr. Platt have testified that other options to address supply shortfalls are vulnerable to force majeure and other disruptive events. Has the Company addressed such reliability concerns in the design of the LNG facility?

A. Yes, the Company and HDR have worked to design a facility that minimizes exposure to outages. All key components on the vaporization cycle (i.e. pumps, generators, compressors) have N+1 redundancy. N +1 redundancy refers to having capacity and functionality backup for critical systems within the facility. If, for example, a pump fails,

an identical back up pump is available and ready to be placed into service. In addition, the plant buildings and tank will be built to the latest seismic codes and designed to withstand potential liquefaction of the supporting soils. Lastly, the Company will design the inlet piping and metering to withstand major seismic events.

Q. Has the Company begun to obtain necessary permitting for the proposed LNG facility?

A. Yes. HDR has been assisting the Company in preliminary permitting of the project. HDR and Company representatives have had discussions with the Salt Lake County Planning Department relating to conditional use requirements, as well as the State Department of Environmental Quality relating to air emissions permitting. In addition, DEU had consultants prepare environmental Phase I and Phase II studies to evaluate the site for possible contaminants (there are no contaminants that would prevent DEU from purchasing the property). HDR has evaluated and cleared the project for impacts to threatened and endangered species, cultural resources, and waters of the U.S.

Q. What is the status of the property acquisition?

A. The Company and [redacted] have reached agreement to the primary terms of an Option Agreement whereby the Company could purchase the Magna parcel. The Option Agreement provides that the Company will make a payment of [redacted] if the Commission approves the Application in this docket. The draft contract documents are voluminous, but the FEED study (DEU Confidential Exhibit 5.02) contains a detailed description of the facilities to be constructed and DEU Confidential Exhibits 5.04 and 5.05 contain cost estimates.

Q. What is the status of the EPC contract development?

A. The Company and HDR have developed contract documents that are ready for bid release when the project is approved. These include separate Scope of Work and contract documents for the construction of the facility as well as the construction of the LNG storage tank. The Scope of Work documents provide the EPC contractors with the

technical documentation of the project, while the contract documents outline the anticipated commercial terms.

Q. Why didn't the Company bid the project before filing a pre-approval application with the Utah Public Service Commission (PSC)?

A. There are several reasons the Company chose not to proceed with the bid prior to requesting approval. First, the Company prefers to obtain Commission approval in this docket before bidding the project. The Company recognizes that bidding on projects like this one can be very expensive for the bidders. Preparation of these submittals can take months and cost in excess of $50,000 per contractor. The Company did not want to subject potential bidders to that cost risk if the project had not yet received Commission approval. In addition, DEU wanted to bid the project with a defined construction schedule. Bidding the project without Commission pre-approval would mean that a construction schedule could not be clearly defined. Because bidders would not know specifically whether the project would be approved and, if so, what the schedule would be, this uncertainty would likely lead to more expensive bids and may impact the quality of construction teams the EPC contractors would provide for the project. As a result, in lieu of obtaining bids, the Company obtained cost estimates that assume a specified schedule.

Q. How much will the LNG facility cost?

A. The total estimated cost for the LNG project is [redacted] including the cost of the EPC contractors, materials, real property, and the Company's internal costs (Labor, Overhead, AFUDC, and inflation). These costs are summarized in the table below.

Cost Category	Amount
Materials and Construction	[redacted]
Land	[redacted]

Internal Labor	$5,835,000
Allowance for Funds used during construction (AFUDC)	[redacted]
Inflation	[redacted]

Q. How did the Company determine the project cost?

A. The Company used two processes to estimate the final cost of the LNG project. First the Company engaged HDR to prepare an estimate based on the results of the FEED study. This estimate utilized estimated costs from suppliers and vendors, as well as the Company's in-house engineering and estimating expertise. That estimate is attached as DEU Confidential Exhibit 5.04. The Company also hired EPC contractor Northstar Energy (Northstar) to prepare an estimate based on the statement of work (SOW) and contract documents prepared as part of the FEED study. Northstar was created in 1996 by former natural gas utility engineers and industry managers. They are headquartered in Methuen, MA. Northstar provides turnkey EPC services to natural gas customers across the country and has extensive LNG experience. The Northstar Energy estimate is attached as DEU Confidential Exhibit 5.05. A comparison of the two estimates shows that the HDR estimate of [redacted] and the Northstar estimate of [redacted] are very close. In an effort to be conservative, the Company chose the higher HDR amount of [redacted] for its cost estimate. Also, as I discussed above, the price for purchasing the real property has been negotiated as [redacted] Mr. Mendenhall discusses the remaining elements of the total project cost in his direct testimony.

Q. Please explain how labor and overhead were calculated?

A. This project will require contributions from employees in engineering, right of way, legal, construction support and IT. DEU 5.06 provides an estimate of the capitalized labor and associated labor overhead for the employees that are anticipated to work on this project. The total for labor and labor overhead amounts to approximately $5,835,000.

Q. If the Commission approves this project, what is the anticipated schedule for construction?

A. The project would come online for the 2022 winter heating season. If the Company receives Commission pre-approval of the project, the schedule would likely be as follows:

Bid Project: 2nd or 3rd Quarter 2019
Award Project: 1st or 2nd Quarter 2020
Finalize Property Purchase: 1st Quarter 2020
Construct Project: 2nd/3rd Quarter 2020-2nd/3rd Quarter 2022

IV. OTHER OPTIONS

Q. Have you prepared cost estimates for any of the other options?

A. Yes. As Ms. Faust mentioned, Magnum Energy provided options that require the construction of interconnect facilities. I have included estimates for costs of the interconnect facilities as DEU Exhibit 5.07 and DEU Exhibit 5.08, respectively.

Q. Does this conclude your testimony?

A. Yes.

State of Utah)
) ss.
County of Salt Lake)

I, Michael L. Gill, 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.

Michael L. Gill

SUBSCRIBED AND SWORN TO this 25th day of April, 2018.

Notary Public

LEORA N. PRICE
Notary Public State of Utah
My Commission Expires on
August 19, 2018
Comm Number 677685