

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. 19-057-13

DIRECT TESTIMONY OF
BRUCE L. PASKETT
FOR
DOMINION ENERGY UTAH
DEU HIGHLY CONFIDENTIAL EXHIBIT 6.0
April 30, 2019

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1 **I. INTRODUCTION AND SUMMARY**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Bruce Paskett. My business address is 10731 E. Easter Avenue, Suite 100,
4 Centennial, Colorado 80112.

5 **Q. PLEASE STATE YOUR OCCUPATION AND ON WHOSE BEHALF YOU ARE**
6 **TESTIFYING.**

7 A. I am a Senior Associate and Chief Regulatory Engineer at Structural Integrity Associates,
8 Inc. I am testifying on behalf of Dominion Energy Utah (DEU).

9 **Q. PLEASE SUMMARIZE YOUR EDUCATION AND WORK EXPERIENCE.**

10 A. I received a Bachelor of Science Degree in Mechanical Engineering from Oregon State
11 University. I have been a Registered Professional Engineer in the State of Oregon since
12 1987. From 1983-2014, I was employed at NW Natural Gas (NW Natural or NWN), a
13 natural gas transmission and distribution pipeline operator and Local Distribution Company
14 (LDC) based in Portland, Oregon. NW Natural also had two on-system LNG storage plants
15 and on-system underground storage reservoirs. While at NW Natural, I held a number of
16 different management positions, including System Design Engineer, Supervising Engineer-
17 Design, Supervising Engineer-Field, Manager of Engineering, Chief Engineer, Manager of
18 Code Compliance and Principal Compliance Engineer. In these positions, I had the
19 responsibility at various times for the design, construction, operation and maintenance of the
20 Company's transmission and distribution piping systems. I was also involved with

21 supporting the LNG plants and underground storage facility on numerous occasions
22 regarding design, engineering, operations, maintenance and regulatory matters. During my
23 tenure at NW Natural, I was responsible for ensuring the Company's compliance with
24 applicable Federal and State pipeline safety regulations and initiating programs to further
25 improve the safety of the Company's pipeline infrastructure. I was also responsible for the
26 development and distribution of procedures that defined the Company's policies and
27 practices to comply with the requirements of Federal and State pipeline safety regulations. I
28 was a member of the NWN Emergency Operations Committee (EOC) that was convened to
29 respond to emergency situations and cold weather operating conditions.

30 In September 2014, I joined Structural Integrity Associates, Inc. In my current practice, I
31 provide consulting services for natural gas mid-stream, transmission, and distribution
32 pipeline operators across the country relative to compliance with applicable Federal and
33 State pipeline safety regulations and the design, construction, operation, and maintenance of
34 pipeline facilities.

35 My resume is included as DEU Exhibit 6.01.

36 **Q. PLEASE DESCRIBE YOUR INVOLVEMENT WITH PROFESSIONAL**
37 **ASSOCIATIONS AND PIPELINE SAFETY REGULATORY INITIATIVES.**

38 A. During my over 35 years in the natural gas industry, I have been significantly involved in
39 natural gas professional associations and pipeline safety regulatory initiatives, including:

- 40 • Loaned Executive for the American Gas Association (AGA)¹ from 2009-2013.
41 Represented AGA member companies and the natural gas industry during the 2011
42 congressional pipeline safety reauthorization² and various pipeline safety rulemaking
43 initiatives.
- 44 • AGA Operations Section Committees for nearly 35 years, including the Distribution
45 Transmission Engineering Committee, Operations Safety Regulatory Action
46 Committee, Security Committee and Transmission Integrity Management Program
47 (TIMP) Committee. My tenure as a Loaned Executive with AGA and participation in
48 various AGA operating committees has allowed me to gain in-depth familiarity with
49 natural gas transmission and distribution companies across the nation.
- 50 • Participated with AGA in the development of the original natural gas Transmission
51 Integrity Management Program (TIMP)³ regulation in 2002-2003.
- 52 • Represented AGA member companies in development of the American Gas
53 Foundation (AGF) Study on Safety Performance and Integrity of the Natural Gas
54 Distribution Infrastructure.⁴
- 55 • Represented AGA member companies and the natural gas industry in the Federal
56 Department of Transportation (DOT), Pipeline and Hazardous Materials Safety
57 Administration (PHMSA) “Integrity Management for Gas Distribution, Report of
58 Phase 1 Investigations”.⁵
- 59 • Represented AGA member companies and the natural gas industry in development of
60 the Gas Piping Technology Committee (GPTC) Guidance for the Distribution
61 Integrity Management Program (DIMP) Regulation.⁶
- 62 • Participated with AGA in drafting comments to the docket regarding the Notice of
63 Proposed Rulemaking (NPRM) for PHMSA’s DIMP regulation.⁷

¹ The American Gas Association represents over 200 local distribution companies across the nation.

² Pipeline Safety, Regulatory Certainty and Job Creation Act of 2011.

³ 49 CFR, Part 192, Subpart O, Gas Transmission Pipeline Integrity Management, 68 FR, 69817, December 15, 2003.

⁴ AGF, “Safety Performance and Integrity of the Natural Gas Distribution Infrastructure” January 2005.

⁵ “Integrity Management for Gas Distribution, Report of Phase 1 Investigations,” December 2005.

⁶ Gas Piping Technology Committee Z380, “Guide for Gas Transmission and Distribution Piping Systems, Distribution Integrity Management Program,” Appendix G-192-8, 2009 Edition.

⁷ Notice of Proposed Rulemaking, Pipeline Safety: Integrity Management for Gas Distribution Pipelines, FR/Vol.73, No.123/Wednesday, June 25, 2008/ Proposed Rules.

64 • Participated with AGA in drafting comments to the docket regarding the Advance
65 Notice of Proposed Rulemaking (ANPRM) for PHMSA’s Safety of Gas
66 Transmission Pipelines regulation.⁸

67 • Participated with AGA in drafting comments to the docket regarding the NPRM for
68 PHMSA’s Safety of Gas Transmission and Gathering Pipelines regulation.⁹

69 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

70 A. The purpose of my testimony is to provide expert opinion regarding the reliability needs for
71 Dominion Energy Utah’s (DEU or Company) system and DEU’s evaluation of options to
72 add supply reliability resources to the Company’s existing gas supply portfolio to improve
73 the safety and reliability of service to customers during cold weather operating conditions
74 and other emergency events.

75 **Q. WHAT WAS THE SCOPE OF YOUR REVIEW?**

76 A. In the formulation of my testimony, I reviewed the following documents and sources of
77 information:

- 78 • Direct Testimony of Kelly B. Mendenhall, DEU Highly Confidential Exhibit 1.0
- 79 • Direct Testimony of Tina M. Faust, DEU Exhibit 2.0
- 80 • Direct Testimony of William F. Schwarzenbach, DEU Highly Confidential Exhibit
81 3.0
- 82 • Direct Testimony of Michael L. Platt, DEU Confidential Exhibit 4.0
- 83 • Direct Testimony of Michael L. Gill, DEU Highly Confidential Exhibit 5.0
- 84 • DEU Supply Reliability Evaluation, DEU Highly Confidential Exhibit 3.03
- 85 • DEU Supply Reliability Risk Analysis, DEU Exhibit 2.04

⁸ Advance Notice of Proposed Rulemaking, Pipeline Safety: Safety of Gas Transmission Pipelines, FR/Vol. 76, No. 165/ Thursday, August 25, 2011/ Proposed Rules.

⁹ Notice of Proposed Rulemaking, Pipeline Safety: Safety of Gas Transmission and Gathering Pipelines, FR/Vol.81, No.68/ Friday, April 8, 2016/ Proposed Rules.

109 an extended period of time until upstream supplies are re-instated and individual customer
110 gas service can be restored. Since DEU is committed to fulfilling its statutory mandate and
111 obligation to provide safe and reliable service to customers, the Company has voluntarily
112 and, in my opinion, prudently initiated a process to identify and evaluate options for adding
113 the most appropriate supply resource(s) to maintain system supply, reliability and pressure
114 support during cold weather periods and other emergency events.

115 **Q. WHAT IS YOUR UNDERSTANDING OF THE PROCESS ENGAGED IN BY THE**
116 **COMPANY TO IDENTIFY A LONG-TERM SUPPLY RELIABILITY SOLUTION?**

117 A. The Company has conducted a process to identify, evaluate and select one or more option(s)
118 for adding additional supply resources to maintain system supply, reliability and pressure
119 support during cold weather periods and other emergency events. This process included a
120 review of various potential resources during at least 2018 and 2019.

121 In addition, on January 2, 2019, DEU issued a Request for Proposal (RFP) to outside parties
122 seeking Proposals for a supply reliability resource to meet performance requirements
123 detailed in the RFP. In issuing the RFP, the Company utilized its well-established RFP
124 process to solicit Proposals from outside parties. DEU provided the RFP on a publicly
125 available Dominion Energy “Utah Natural Gas Supply Reliability Proposals” website along
126 with other relevant information, such as “RFP Questions and Answers” and slides from the
127 respondent conference. A link to the RFP website was sent to all known parties that might be
128 able to provide resources, including gas suppliers, storage providers, and upstream pipelines.
129 The RFP information was also advertised for multiple days over a two-week period in the

130 S&P Global Platts Gas Daily newsletter, which is subscribed to, and read by, most parties in
131 the natural gas supply industry.

132 In the RFP, DEU specifically detailed the Supply Resource Requirements, including the
133 Design Requirements, Delivery Location, Operational Requirements, Term of the
134 Agreement, and the required In-Service Date. In addition, the RFP also defined the
135 Evaluation Criteria and Factors that would be used by DEU for selecting the most
136 appropriate option to meet the Company's supply reliability resource needs. The RFP
137 disclosed that DEU would also be evaluating a potential on-system, DEU-owned LNG
138 Facility as an alternative. The Company received responses on March 4, 2019 from three
139 interested parties; Magnum Energy Midstream (Magnum) which submitted three proposal
140 options, Prometheus Energy (Prometheus) which submitted two proposal options and United
141 Energy Partners (UEP) which submitted one proposal option. The RFP produced a total of
142 six options for a supplemental supply reliability resource. The six RFP options in addition to
143 the option of the DEU-owned LNG Facility produced a total of seven supply reliability
144 resource options for evaluation by the Company. In the Supply Reliability Evaluation, the
145 Company considered and evaluated a comprehensive list of reasonable and appropriate
146 factors, including, Safety, Cost, Contract Terms, Design and Technical Requirements,
147 Delivery Location, Operational Requirements, Financial Viability of the Proposal,
148 Reliability, Ancillary Benefits, Other Factors associated with the delivery of the supply and
149 physical location of the additional supply resource (on-system vs. off-system).

150 **Q. BASED ON YOUR EXPERIENCE, IS THE PROCESS ENGAGED IN BY THE**
151 **COMPANY TO ASSESS ITS RELIABILITY NEEDS AND THE AVAILABLE**
152 **OPTIONS CONSISTENT WITH PRUDENT UTILITY OPERATIONS?**

153 A. In my experience, I believe that the process engaged in by DEU to assess reliability needs
154 and identify reasonably available options to supplement the Company's existing gas supply
155 portfolio has been conducted in a reasonable manner consistent with prudent utility
156 practices. In defining the DEU supply reliability needs, the Company used information and
157 data ranging from historical operating experiences on the Company's system from the early
158 1990s through winter 2018-2019. In addition, the Company's reliability analysis
159 investigation sought industry information from other natural gas LDCs that have experienced
160 supply disruptions in recent years, consistent with the regulatory requirements of the Gas
161 Distribution Integrity Management Regulation (49 CFR, Part 192, Subpart P). The PHMSA
162 Inspection Form¹¹ associated with §192.1007(b) *Identify Threats* for Gas DIMP inspections
163 evaluates:

164 *Do the procedures consider, in addition to the operator's own information, data from*
165 *external sources (e.g. trade associations, government agencies, or other system*
166 *operators, etc.) to assist in identifying potential threats?*

167 As a prudent operator, DEU has gathered data from external sources to inform its analysis.
168 The Company proactively utilized the American Gas Association SOS process (DEU
169 Confidential Exhibit 2.06) to poll other LDCs regarding their experiences relative to
170 interruptions in supply reliability. Based on the AGA survey and additional information

¹¹ PHMSA Form 22 Question Set (IA Equivalent) Distribution Integrity Management Program (GDIM) Inspection Form, Gas Distribution Integrity Management – Identify Threats, Question 3. Identify Threats-

171 gathered from “*other system operators*” the Company identified numerous cases of other
172 LDCs that had experienced challenges regarding the loss of supply reliability during winter
173 operating conditions as recently as the winter season of 2018-2019. The most significant
174 supply disruption and associated customer service interruption identified by DEU occurred in
175 February 2011 with the loss of service to more than 40,000 customers in New Mexico and
176 Arizona by New Mexico Gas Company and Southwest Gas Company. This significant
177 interruption of service to more than 40,000 gas customers was caused by “widespread
178 wellhead, gathering system and processing plant freeze-offs and hampered repair and
179 restoration efforts”. As a more recent example of threats to an LDC’s supply reliability, in
180 October 2018 the 36-inch Enbridge transmission pipeline that serves Fortis BC (the LDC that
181 provides natural gas service to Vancouver, BC) ruptured north of Prince George, BC. The
182 36-inch transmission pipeline and a parallel 30-inch transmission pipeline had to be shut
183 down, severely limiting the supply of natural gas to the Fortis BC service territory. Fortis BC
184 relied, in part, on gas supplies from the two Fortis BC on-system LNG plants to maintain
185 service to customers. In my opinion, the process engaged in by the Company to assess its
186 reliability needs has been conducted in a reasonable manner consistent with my expectations
187 for a prudent LDC and has unquestionably confirmed the need for an additional supply
188 resource.

189 In addition, the process followed by DEU to identify available options for an additional
190 supply resource has been consistent with prudent utility operations. The RFP resulted in
191 Proposals from three different respondents who proposed a total of six options. In addition,
192 the Company evaluated the option of an on-system DEU-owned LNG Facility. In my

193 opinion, DEU has conducted a comprehensive, competent and objective job of considering
194 and evaluating the appropriate factors associated with each available supply resource option.
195 The process utilized by the Company to assess reliability needs and evaluate available
196 options is consistent with my experience and expectations for a prudent LDC.

197 **Q. WHAT DO YOU UNDERSTAND THE COMPANY'S MANDATE AND**
198 **OBLIGATIONS TO BE WITH REGARD TO PROVIDING RELIABLE SERVICE**
199 **TO CUSTOMERS?**

200 A. My understanding is that DEU has a legislative mandate and obligation to provide safe and
201 reliable natural gas service to customers in the Company's franchised service territory. The
202 Utah Code¹² requires that:

203 Every public utility shall furnish, provide and maintain such service,
204 instrumentalities, equipment, and facilities as will promote the safety, health, comfort
205 and convenience of its patrons, employees, and the public, and as will be in all
206 respects adequate, efficient, just and reasonable.

207 Based on the Utah Code, it is clear that DEU has a statutory mandate to make every
208 reasonable effort to ensure that the Company's gas customers are provided with gas service
209 that promotes their safety, health, comfort and convenience. This legislative mandate is
210 especially applicable during periods of extreme cold weather when the interruption of
211 reliable gas service for an extended period of time could present a threat to life, safety, and
212 health.

¹²Utah Code, Title 54, Chapter 3, Section 1, Amended by Chapter 206, 1977 General session.

213 **III. THE COMPANY NEEDS A LONG-TERM RELIABILITY SOLUTION**

214 **Q. HAVE YOU REVIEWED THE COMPANY'S SUPPLY RELIABILITY RISK**
215 **ANALYSIS, DEU EXHIBIT 2.04?**

216 A. Yes. I have reviewed the DEU Supply Reliability Risk Analysis, DEU Exhibit 2.04. In
217 addition, I have met with Company personnel to discuss the Risk Analysis and to understand
218 the system supply reliability threats that have caused, and could potentially cause, supply
219 disruptions on the DEU system. In my opinion, the Risk Analysis does a reasonable and
220 competent job of identifying the types of threats and risks to the upstream delivery system
221 that could potentially affect the reliability of gas supplies to the DEU system during a Design
222 Day, during an extended disruption at temperatures that are warmer than Design Day
223 temperatures or during other upstream supply disruptions that may occur. Threats such as
224 well freeze-offs, plant shut-downs due to mechanical issues and/ or power interruptions,
225 equipment failures at processing plants or compressor stations, landslides/ washouts/
226 flooding, earthquakes, human error, third-party excavation damage and cyber-attacks on
227 processing plants and Control Room facilities are all threats to the upstream delivery system
228 that have been experienced by the natural gas industry. These risks present legitimate threats
229 to the safe and reliable delivery of natural gas to the DEU system.

230 **Q. ARE THERE ANY OTHER POTENTIAL THREATS TO THE RELIABILITY OF**
231 **DELIVERY OF UPSTREAM, OFF-SYSTEM GAS SUPPLIES?**

232 A. Yes. There are also additional risks that present significant threats to the reliable delivery of
233 off-system gas supplies to the DEU system. These additional risks involve threats to the
234 integrity of the upstream transmission pipelines that deliver off-system gas supplies to

235 custody transfer points (gate stations) on the DEU system. Industry consensus standards
236 (ASME/ANSI B31.8S-2004)¹³ identify nine categories of potential threats to transmission
237 pipeline systems for operators to consider. These additional threats include internal
238 corrosion, external corrosion, stress corrosion cracking, and fabrication and construction
239 defects. The risks addressed in the DEU Supply Reliability Risk Analysis in conjunction
240 with the additional threats identified in ASME/ANSI B31.8S-2004 present realistic threats to
241 the reliability of delivery of contracted off-system natural gas supplies to the DEU system
242 during cold weather events or other times of the year.

243 **Q. DID YOU EXPERIENCE SIMILAR RISKS WHEN YOU WORKED FOR AN LDC?**

244 A. Yes. During my approximately 31-year tenure at NW Natural, I had extensive experience in
245 the operations of the Company's piping systems, including experience as a member of the
246 Emergency Operations Committee (EOC) that was convened during emergency operating
247 conditions. I also had responsibility for designing and modelling of the piping system as
248 System Design Engineer during my tenure at NWN. While at NWN, I experienced many of
249 the risks detailed in the DEU Supply Reliability Risk Analysis. For example, in February
250 1989, NWN experienced a significant upstream supply shortfall during a wintertime cold
251 weather event that approached a Design Day. The interstate transmission pipeline company
252 that transported natural gas supplies to the NWN system was unable to maintain adequate
253 pressure in the pipeline system to meet contracted delivery pressures at gate stations on the
254 NWN system. The failure to deliver adequate pressures to NWN at gate stations resulted in
255 cascading inadequate pressures on the NWN transmission pipeline system and downstream

¹³ American Society of Mechanical Engineers/ American National Standards Institute B31.8S-2004, "Managing

256 distribution pipelines. This resulted in a significant loss of service to NWN firm customers.
257 However, NWN utilized it's on-system LNG Plants and underground storage to minimize
258 customer interruptions. The 1989 cold weather event on NWN's system was similar to the
259 February 2011 cold weather event experienced in New Mexico and Arizona as described by
260 Tina Faust in DEU Exhibit 2.0. In addition to the 1989 failure of the interstate pipeline
261 system to maintain adequate pressures, the interstate pipeline system that transported off-
262 system gas supplies to the NWN system experienced catastrophic pipeline ruptures due to
263 pipeline integrity threats. These included catastrophic pipeline failures due to land
264 movement (landslides) at Castle Rock, Washington (March 1995), Everson, Washington
265 (February 1997), Kalama, Washington (February 1997) and North Bonneville, Washington
266 (February 1999). In addition to the failures due to natural force events, the interstate pipeline
267 system also suffered catastrophic ruptures related to stress corrosion cracking (SCC) at Lake
268 Tapps, Washington (May 2003) and at Toledo, Washington (December 2003). These
269 catastrophic failures of the upstream interstate pipeline system resulted in flow entitlements
270 that impacted the delivery of contracted gas supplies to NWN. During these upstream
271 transmission pipeline failure events, NW Natural utilized the on-system LNG Plants and
272 underground storage to minimize customer interruptions. The upstream interstate
273 transmission pipeline ruptures that occurred during my tenure at NWN were similar in nature
274 to the 36-inch Enbridge transmission pipeline rupture that occurred in October of 2018,
275 severely restricting the delivery of off-system natural gas supplies to the Fortis BC system.

276 **Q. IN YOUR EXPERIENCE, SHOULD THESE RISKS BE ADDRESSED BY THE**
277 **COMPANY WHEN IT IS ASSESSING ITS GAS SUPPLY PORTFOLIO?**

278 A. Yes. Based on my experience in operations for a natural gas LDC, it is prudent for every
279 operator to identify and evaluate the potential risks to the delivery of contracted gas supplies
280 when the LDC is assessing its gas supply portfolio and contemplating resource additions.
281 DEU has a commitment and statutory obligation to provide safe and reliable delivery of
282 natural gas supplies to its firm customers throughout the year, including under peak winter-
283 time cold weather operating conditions. It is appropriate and prudent for the Company to
284 consider threats and risks to the upstream supply system that may prevent it from fulfilling
285 this obligation when selecting supply resources.

286 **Q. HOW DO OTHER LDCS ADDRESS THESE KINDS OF CONCERNS?**

287 A. In my experience, LDCs across the nation are firmly committed to providing safe and reliable
288 delivery of natural gas to their customers in accordance with their franchise agreements and
289 tariffs. That means they will not only acquire sufficient gas supplies to support the aggregate
290 of their firm customer loads, including on a peak cold weather Design Day, but they also
291 evaluate the reliability of delivery associated with each of the sources of their gas supply
292 portfolios. In this process, operators will typically diversify the gas supply portfolio as much
293 as practicable. For example, they will purchase gas from multiple locations/ producers, store
294 gas in multiple storage locations and transport gas to their systems through more than one
295 interstate pipeline system to diversify supply and minimize the potential for a single adverse
296 event from causing a significant outage during a peak cold weather event. While the DEU
297 gas supply portfolio includes a diversified range of supply resources, the Company still

298 experiences supply disruptions during cold weather events due to the reliance upon off-
299 system supply resources that are subject to a broad number of risks and threats that are
300 outside of the Company's control. As a specific example of an operator's actions to address
301 these kinds of concerns, in response to the February 2011 cold weather event that resulted in
302 the interruption of service to approximately 40,000 gas customers in New Mexico and
303 Arizona, Southwest Gas Corporation re-examined the Company's gas supply portfolio and
304 exclusive reliance on off-system supply sources. In response to this evaluation, Southwest
305 Gas obtained pre-approval to construct an on-system LNG storage facility and is presently in
306 the process of constructing that facility in Southern Arizona.

307 **Q. WHAT IS THE COMPANY'S CURRENT GAS SUPPLY RESOURCE PORTFOLIO?**

308 A. Based on the DEU Supply Resource Stack (DEU Exhibit 4.02), the Company's current gas
309 supply resource portfolio sources include the following; Aquifer Storage, Ryckman Creek
310 Storage, Clay Basin Storage, Cost-of-service gas, Baseload purchases, Peaking Purchases,
311 and Spot Gas Purchases. All of the Company's gas supply resource portfolio is located off
312 the DEU system and therefore, the Company must rely on other parties to operate the
313 respective upstream facilities and transport the gas resources to the DEU system.

314 **Q. WHY IS THE COMPANY'S PORTFOLIO INSUFFICIENT TO ADDRESS THE**
315 **RELIABILITY CONCERNS YOU DISCUSS ABOVE?**

316 A. DEU has adequate natural gas in its gas supply portfolio to meet customer needs on a Design
317 Day, assuming 100% of the contracted gas reaches DEU's system as planned. If less than
318 100% of the gas is delivered as planned, the Company would not be able to meet its firm
319 customer needs on a Design Day. While the Company's gas supply portfolio includes a

320 number of different resources, they are all located off-system and therefore subject to a broad
321 range of threats and risks to their reliable delivery. Conversely, on-system supply resources
322 are not subject to the same threats and risks and, therefore, are a highly reliable supply
323 resource. There is always the risk that a portion of the off-system portfolio will not reach the
324 DEU system on a Design Day. Indeed, over the past five years, there have been multiple
325 instances where disruptions have occurred on the upstream supply system and contracted gas
326 supplies have failed to reach the DEU system, even though Design Day temperatures were
327 not present. As noted in the Supply Reliability Evaluation (DEU Highly Confidential Exhibit
328 3.03) and Supply Reliability Risk Analysis (DEU Exhibit 2.04), these disruptions may be
329 caused by numerous threats and risks to the overall supply delivery chain that includes
330 production or storage wells, processing plants, compressor stations, transmission pipelines
331 and gate stations on the DEU system. Recent cold weather operating experience strongly
332 suggests there is a high likelihood the Company will experience additional supply
333 disruptions during cold weather events or other emergency events in the future that result in
334 the loss of service to a significant number of firm sales customers.

335 **Q. GIVEN THESE RELIABILITY CONCERNS, IS THE COMPANY'S SUPPLY**
336 **PORTFOLIO SUFFICIENT TO ADDRESS THESE CONCERNS ON A DESIGN**
337 **DAY?**

338 A. No. Although DEU technically has adequate gas supplies under contract to meet firm
339 customer's gas needs on a Design Day, its portfolio presumes that all contracted off-system
340 gas supplies will reach the Company's piping system without disruption. Cold weather
341 operating experience in recent years strongly suggests it is unreasonable to assume that all

342 gas supplies will be delivered on a Design Day or that the Company will have enough supply
343 if a disruption occurs on a day when temperatures are very cold for an extended period.
344 Therefore, the existing gas supply portfolio is not sufficient to address DEU's reliability
345 risks and concerns.

346 **Q. HAVE YOU HAD AN OPPORTUNITY TO DISCUSS THESE CONCERNS WITH**
347 **THE COMPANY?**

348 A. Yes. I have had the opportunity to meet with DEU engineering, gas supply and regulatory
349 personnel to discuss the Company's reliability risks and concerns. Based on my discussions
350 with Company personnel and my experience in operations for an LDC, I have concluded that
351 DEU's concerns regarding the reliability of upstream supply sources during extreme cold
352 weather events are reasonable and well founded.

353 **Q. BASED ON YOUR REVIEW AND YOUR EXPERIENCE AS AN OPERATOR AT**
354 **AN LDC, DO YOU BELIEVE IT IS REASONABLE FOR THE COMPANY TO**
355 **PROCURE ADDITIONAL RESOURCES TO ADDRESS ITS RELIABILITY**
356 **CONCERNS?**

357 A. Yes. Based on my review of the information provided by the Company and my experience
358 working with an LDC, I believe it is reasonable and prudent for DEU to acquire additional
359 resources in the gas supply portfolio to address reliability concerns and minimize the
360 potential for major interruptions of service to firm sales customers during cold weather
361 events or other emergency situations.

362 **IV. AN ON-SYSTEM LNG FACILITY IS THE BEST SOLUTION OF**
363 **AVAILABLE OPTIONS TO ADDRESS RELIABILITY CONCERNS**
364 **AND WOULD BE IN THE PUBLIC INTEREST**

365 **Q. DID YOU REVIEW THE COMPANY'S SUPPLY RELIABILITY OPTION**
366 **EVALUATION IDENTIFIED AS DEU HIGHLY CONFIDENTIAL EXHIBIT 3.03?**

367 A. Yes. I have reviewed the Company's Supply Reliability Evaluation (DEU Highly
368 Confidential Exhibit 3.03), which includes an evaluation of each of the Proposal options
369 received in response to the Company's RFP, in addition to the option of an on-system DEU-
370 owned LNG Facility. The Supply Reliability Evaluation identifies the objective of the
371 process and determines the optimum alternative to provide a reliable source of 150,000
372 Dth/day of gas supply to supplement the Company's existing gas supply portfolio.

373 **Q. DO YOU BELIEVE THE COMPANY HAS DONE A COMPREHENSIVE**
374 **EVALUATION OF OPTIONS AVAILABLE FOR RESOLVING ITS SUPPLY**
375 **RELIABILITY CONCERNS?**

376 A. Yes. The evaluation of options conducted by DEU includes a comprehensive review and
377 evaluation of all of the alternatives identified in response to the Company's January 2, 2019
378 RFP along with the option of an on-system, DEU-owned LNG Facility. The options
379 evaluated include; (1) Three options proposed by Magnum [REDACTED]

380 [REDACTED]

381 [REDACTED] (2) Two options proposed by Prometheus [REDACTED]

382 [REDACTED]

383 [REDACTED] (3) An option

384 proposed by the United Energy Partners [REDACTED]

385 [REDACTED] and (4) The option of an on-system, DEU-owned
386 LNG Facility.

387 In my opinion, the Company has conducted a comprehensive, prudent and objective
388 evaluation of the merits associated with each of the available options to resolve system
389 reliability concerns. The evaluation considered reasonable and appropriate factors, including
390 Safety, Cost, Contract Terms, Design and Technical Requirements, Delivery Location,
391 Operational Requirements, Financial Viability of the Proposal, Reliability, Ancillary
392 Benefits, Other Factors associated with the delivery of the supply and physical location of
393 the additional supply source (on-system vs. off-system). The on-system, DEU-owned LNG
394 Facility was subjected to the same evaluation criteria as the options submitted in response to
395 the Company's RFP.

396 **Q. ARE THERE ANY OF THE OPTIONS OUTLINED IN DEU HIGHLY**
397 **CONFIDENTIAL EXHIBIT 3.03 THAT FAIL TO ADEQUATELY ADDRESS THE**
398 **IDENTIFIED CONCERNS?**

399 A. Yes. While all the resource options considered in DEU Highly Confidential Exhibit 3.03
400 would potentially add additional supply resources to the Company's gas supply portfolio,
401 many fail to adequately address the supply reliability concerns. The option of the on-system,
402 DEU-owned LNG Facility is clearly the least cost option and most favorable alternative to
403 meet the Company's stated objective based on cost criteria and also on qualitative benefits.

404 [REDACTED]

405 [REDACTED]

406 [REDACTED] These
407 options would essentially perpetuate the same issues, concerns and supply shortfalls that the
408 Company is attempting to resolve.

409 The three Magnum options located near Delta, Utah meet most of the design and technical
410 requirements defined in the RFP, [REDACTED]

411 [REDACTED]
412 [REDACTED]. The UEP proposal for

413 [REDACTED]
414 [REDACTED]

415 [REDACTED]. While the Prometheus
416 Options [REDACTED]

417 [REDACTED] propose [REDACTED]
418 [REDACTED]

419 [REDACTED]
420 [REDACTED]

421 [REDACTED]
422 [REDACTED]

423 [REDACTED]
424 [REDACTED]

425 [REDACTED]
426 [REDACTED]

427 [REDACTED]

428 [REDACTED]
429 [REDACTED]
430 [REDACTED]
431 [REDACTED]
432 [REDACTED]
433 [REDACTED]
434 [REDACTED]

435 The DEU-owned LNG Facility is the lowest cost option available and provides substantial
436 benefits based on qualitative factors. These qualitative factors include dedicated use of the
437 facility and operations conducted under the direct control of DEU.

438 **Q. WHAT IS THE DIFFERENCE BETWEEN AN ON-SYSTEM SUPPLY OPTION AND**
439 **AN OFF-SYSTEM SUPPLY OPTION?**

440 A. As the name suggests, an on-system supply option means that the gas supply resource is
441 physically located on the operator's system and therefore does not require transportation by
442 pipeline to reach the LDCs service territory. On-system supply resources are typically under
443 the direct control of the LDC. When the LDC elects to utilize an on-system supply resource,
444 the on-system supply is immediately available to provide additional natural gas supplies,
445 reinforce system pressures, and, in general, meet the needs of the LDC's customers.
446 Conversely, an off-system supply option is physically located off the LDC's system, and, in
447 the case of DEU, they are hundreds of miles away, and therefore not under the direct control
448 of the Company. For its off-system options, DEU must rely on third parties throughout the
449 supply chain to perform. In addition, gas from the off-system resources must be physically

450 transported to the Company's system, which exposes the supply to a multitude of risks and
451 threats to its deliverability.

452 **Q. IN YOUR EXPERIENCE, ARE THERE DISADVANTAGES TO AN OFF-SYSTEM**
453 **RESOURCE?**

454 A. Yes. Based on my experience working for an LDC, there are numerous disadvantages to off-
455 system gas supply resources. Since the resources are physically located off-system, they are
456 not under the direct control of the operator and are subject to North American Energy
457 Standards Board (NAESB) scheduling which restricts the ability to transport the gas to the
458 operator's system quickly. The fact that the resource is located off the operator's system
459 requires that the gas be physically transported from the resource location to the custody
460 transfer points (gate stations) on the operator's system through one or more interstate
461 transmission pipelines. Off system resources are subject to a multitude of threats and failures
462 on one or more plants, facilities or transmission pipeline systems upstream of the LDC's
463 system (e.g. wellheads, gathering lines, processing plants, compressor stations, interstate
464 pipelines). The reliance on a series of off-system facilities greatly increases the potential for
465 supply disruptions.

466 **Q. THE COMPANY HAS INDICATED THAT THE GEOGRAPHICALLY DISTANT**
467 **RESOURCES THAT IT HAS ASSESSED ARE VULNERABLE TO A VARIETY OF**
468 **RISKS. DO YOU AGREE?**

469 A. Yes. Based on my experience working for an LDC and my review of the risks and concerns
470 identified by the Company in the Supply Reliability Evaluation, the Supply Reliability Risk
471 Analysis and during my meetings with Company operations personnel, I agree that the

472 geographically distant, off-system supply resources identified and evaluated by the Company
473 are vulnerable to a wide variety of risks that threaten the safe, reliable and timely delivery of
474 natural gas supplies and pressure reinforcement to the DEU system, particularly during a
475 cold weather event or upstream pipeline failure event. The more off-system facilities that are
476 involved in the supply resource chain of the Company's portfolio, and the greater the
477 physical distance, the greater the exposure to an increased number of supply reliability risks.

478 **Q. IN YOUR EXPERIENCE, HOW SERIOUS ARE THESE RISKS?**

479 A. The potential risks associated with off-system, geographically distant supply options are very
480 serious, and a prudent operator should consider them carefully in evaluating and selecting a
481 gas supply resource. During my tenure with an LDC, I had the occasion to experience many
482 of these risks personally. NW Natural experienced numerous supply disruptions due to the
483 catastrophic ruptures of upstream pipelines and other facilities due to the types of risks
484 identified by DEU. In addition, the February 2011 supply disruption in New Mexico and
485 Arizona that affected more than 40,000 customers underscores and confirms the serious
486 potential of these upstream risks to disrupt supplies to a significant number of end-use
487 customers during a cold weather event. Further, the October 2018 rupture of the 36-inch
488 Enbridge transmission pipeline that serves Fortis BC (LDC in Vancouver, BC) and required
489 shut-down of the 36-inch and 30-inch transmission pipelines further reinforces the
490 indisputable fact that geographically distant, off-system supply resources are subject to
491 failure and/or interruption of transportation without warning.

492 **Q. IN YOUR EXPERIENCE, ARE THERE PARTICULAR BENEFITS TO AN ON-**
493 **SYSTEM RESOURCE?**

494 A. Yes. Based on my experience with an LDC, there are significant benefits to on-system gas
495 resources. On-system storage resources provide an unparalleled benefit to system reliability.
496 The on-system resource owner typically operates the resource and has complete flexibility in
497 operation and deliverability of the resource. In the event of upstream supply disruptions,
498 such as the October 2018 Enbridge transmission pipeline rupture North of Prince George
499 BC, the owner/operator of an on-system supply resource can quickly provide additional gas
500 and pressure support to the system to replace disrupted upstream resources. One of the most
501 significant benefits of on-system resources is the ability to provide immediate gas supplies
502 and system pressure support as compared to the process of nominating or purchasing gas
503 supplies in accordance with the NAESB schedule which may substantially delay the delivery
504 of urgently needed supplemental gas supplies. The major benefits associated with on-system
505 resources are that they are immediately dispatchable by the LDC and avoid the significant
506 risks and concerns associated with off-system resources as identified by DEU in the
507 Company's Supply Reliability Risk Analysis. In my experience, there were numerous
508 occasions where NW Natural utilized one or both of the LNG plants and underground
509 storage to provide gas supplies and pressure support for the NWN system when off-system
510 gas supplies failed to reach its system due to upstream interstate pipeline failures. These
511 pipeline failures resulted in flow entitlements (restrictions) to the amount of gas that could
512 be taken from the interstate pipeline system. NWN frequently mitigated these supply
513 shortfalls by the use of on-system LNG and on-system underground storage.

514 **Q. DEU HAS DETERMINED THAT AN ON-SYSTEM DEU-OWNED LNG FACILITY**
515 **IS THE BEST SOLUTION FOR ADDRESSING THE SUPPLY RELIABILITY**
516 **RISKS OUTLINED IN DEU EXHIBIT 2.04? DO YOU AGREE?**

517 A. Yes. Based on my experience working with an LDC and my experience with the benefits and
518 reliability of on-system LNG facilities owned and operated by the LDC, I agree with DEU's
519 determination that an on-system DEU-owned LNG Facility is the best solution available for
520 addressing its supply reliability risks. The DEU-owned LNG facility is substantially less
521 costly than the next lowest cost option available and provides compelling advantages to
522 system reliability compared to the other alternatives identified through the RFP process. The
523 DEU-owned LNG Facility effectively mitigates the upstream risks to the reliable delivery of
524 natural gas to the DEU system under peak cold weather operating conditions. In addition, it
525 would provide an incomparable on-system supply option. [REDACTED]

526 [REDACTED]
527 [REDACTED]
528 [REDACTED]

529 [REDACTED]. I believe that DEU's determination that an on-system, DEU-owned LNG Facility
530 is a very prudent decision that would provide significant benefits for the Company and its
531 customers.

532 **Q. PLEASE EXPLAIN WHY YOU AGREE THAT AN ON-SYSTEM DEU-OWNED**
533 **LNG FACILITY IS THE BEST SOLUTION.**

534 A. In the DEU Supply Reliability Evaluation and Supply Reliability Risk Analysis, the
535 Company identified the upstream risks that have the potential to disrupt the reliable delivery

536 of off-system gas supplies to the Company's system. Examples of these types of risks
537 include wellhead freeze-offs, processing plant and compressor station failures, power
538 outages, plant shutdowns, mechanical failures and force majeure events. An example of
539 supply reliability interruptions due to this type of threat was the February 2011 interruption
540 of service to more than 40,000 customers in New Mexico and Arizona. Additional threats
541 exist to the pipelines that transport the off-system gas supplies to the DEU system, including
542 natural forces events (e.g. landslides, flooding, earthquakes), human error, third-party
543 excavation damage, cyber-attacks, and pipeline integrity threats such as external corrosion,
544 internal corrosion and stress corrosion cracking. A recent example of supply reliability
545 interruptions due to a catastrophic upstream pipeline event was the October 2018 Enbridge
546 transmission pipeline rupture near Prince George, BC that resulted in the shut-down of 36-
547 inch and 30-inch transmission pipelines that serve Fortis BC. The on-system DEU-owned
548 LNG Facility is the most cost-effective solution and the only alternative that provides an on-
549 system supply that provides the Company complete, direct control over the mitigation of
550 these upstream risks. It is therefore the most appropriate, secure, and dependable alternative
551 to improve the reliability of supply to the Company's system and customers. The third-party
552 owned and operated on-system LNG options would provide higher cost options that do not
553 have the same benefits as the DEU-owned LNG Facility (e.g. exclusive dedicated facility
554 under the Company's direct operational control). The DEU-owned LNG Facility is the least
555 costly option and the best option available to address the identified risks and threats to the
556 reliability of supplies during cold weather or other emergency events.

557 **Q. DO YOU HAVE EXPERIENCE WITH ON-SYSTEM LNG FACILITIES? IF SO,**
558 **PLEASE DESCRIBE THAT EXPERIENCE.**

559 A. Yes. In my previous employment with NW Natural I had significant experience with on-
560 system storage facilities under the direct control of the LDC. NWN had the benefit of having
561 two on-system LNG storage plants and underground storage. The on-system LNG plants
562 were owned, operated, maintained and dispatched by NWN. The LNG plants, in conjunction
563 with other on-system storage, provided NWN with significant benefits related to supply
564 diversification and system reliability throughout the year, including during cold weather
565 operating conditions and other emergency conditions. For example, the on-system LNG
566 plants were part of the on-system supply portfolio used to maintain safe and reliable service
567 to customers during numerous catastrophic failures of the upstream interstate pipeline
568 system. As described earlier in my testimony, there were numerous occasions where the
569 Company utilized one or both of the LNG plants (in conjunction with underground storage)
570 to provide gas supplies and pressure support to the NWN system when off-system gas
571 supplies transported by interstate pipelines failed to reach the NWN system. These LNG
572 facilities were invaluable in maintaining safe and reliable service to NWN firm customers.

573 The existence of on-system storage under the direct control of the company provided NWN
574 with significant flexibility in responding to upstream supply interruptions that threatened the
575 safety and reliability of service to customers. In addition, NWN also used LNG to respond to
576 emergency situations and to provide system pressure support during isolated events.

577 **Q. PLEASE SUMMARIZE YOUR PRIMARY CONCLUSIONS AND**
578 **RECOMMENDATIONS**

579 A. DEU has an obligation to provide safe and reliable service to the Company's residential,
580 commercial and industrial sales customers. Based on recent upstream supply disruptions
581 experienced during winter cold weather events, DEU has identified legitimate concerns
582 regarding the reliability of upstream, off-system supply resources to perform without
583 interruption during winter cold weather events, on a Design Day or other emergency events.
584 These concerns are further validated by recent supply disruptions experienced by LDCs in
585 New Mexico and Arizona in February 2011 and again in Vancouver BC in October 2018.
586 The Company has prudently determined the need to obtain an additional source(s) of gas to
587 add to the gas supply portfolio to maintain system safety, reliability and adequate system
588 operating pressures during a cold weather or emergency event. DEU has conducted a
589 comprehensive Supply Reliability Risk Analysis to identify risks and threats to the reliable
590 delivery of off-system gas supplies to the Company's system. On January 2, 2019 the
591 Company issued RFPs to solicit proposals from a wide-range of interested parties to identify
592 additional supply resources. The Company received Proposals from three interested parties
593 that included a total of six options. DEU also considered the option of an on-system, DEU-
594 owned LNG Facility. To evaluate the supply reliability options received in the Proposals
595 submitted in response to the RFP (along with the DEU-owned LNG Facility), DEU has
596 conducted a comprehensive Supply Reliability Evaluation to identify the optimal additional
597 source of supply to minimize the potential for service interruptions. Based on the analyses,
598 the Company has concluded that the least-costly and most beneficial option is an on-system,

599 DEU-owned LNG Facility under the direct control of the Company. During my tenure at
600 NWN, I had significant experience with on-system LNG facilities under the direct control of
601 the LDC and concluded that on-system LNG storage under the company's direct control was
602 an incomparable resource to maintain the safe and reliable delivery of natural gas service to
603 customers. There were numerous instances where NWN utilized one or both of the
604 Company's LNG Plants to provide gas supplies and pressure support to the NWN system
605 when off-system gas supplies failed to reach the system. I have reviewed the DEU analyses
606 and believe that the analyses are comprehensive, reasonable, objective and competently
607 performed. I concur with the Company's conclusion that an on-system, DEU-owned LNG
608 Facility would be the most prudent option for addressing system reliability issues and
609 improving the safety and reliability of service to firm customers during a cold weather or
610 other emergency event.

611 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

612 A. Yes.

State of Oregon)

: ss.

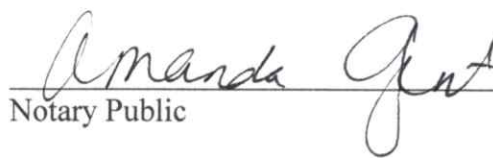
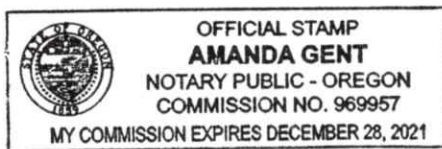
County of Washington)

I, Bruce L. Paskett, 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.



Bruce L. Paskett

SUBSCRIBED AND SWORN TO this 30th day of April 2019.



Notary Public