

1 (NH) and promoted to Senior Director in July 2013 and Vice President in July 2014. In
2 November 2016, I became Vice President, Regulated Infrastructure Development – Gas,
3 of Liberty.

4 **Q. Mr. Killeen, please summarize your educational and professional background.**

5 A. I earned a Bachelor of Engineering Science (Chemical) degree from the University of
6 Western Ontario (now Western University) in 1985. I also earned a Master's degree in
7 Business Administration from the Ivey School of Business at Western University in 1989.

8 I have approximately 31 years of professional experience in the energy and utilities
9 industries in the areas of regulation, supply, operations, and customer service. I have
10 worked at natural gas utilities and electric utilities, as well as in consulting, marketing, and
11 government positions. Early in my career, I was employed by Union Gas Limited, a major
12 natural gas utility serving over 1.4 million customers in Ontario, Canada, for twelve years
13 in varying capacities, including regulatory and supply. Prior to joining Liberty Utilities
14 (Canada) Corp. in February 2014, I was employed by Enersource Hydro Mississauga Inc.,
15 a major electric utility serving the City of Mississauga, Ontario, for three years as Manager,
16 Regulatory Affairs. In between my employment at these two large utilities, I was employed
17 at various other companies, always retaining responsibility for oversight of regulatory
18 affairs and supply, typically in Ontario or eastern Canada. These companies included
19 Engage Energy Canada Inc., Direct Energy as Manager, Regulatory Affairs, and a
20 consulting company, ECNG Energy LP, as Director, Supply and Regulatory Affairs for
21 eight years. Following ECNG, I spent a brief tenure within the Ministry of Energy of the
22 Ontario Government.

1 **II. PURPOSE AND OVERVIEW**

2 **Q. What is the purpose of your Direct Testimony?**

3 A. The purpose of our Direct Testimony is to present evidence for Commission approval of a
4 Firm Transportation Agreement (“FT-A”) between Liberty and Tennessee Gas Pipeline
5 Company, LLC (“TGP”) for 40,000 Dth per day of capacity from the Dracut,
6 Massachusetts, receipt point to the Londonderry, New Hampshire, delivery point, which
7 was executed on July 14, 2020 (the “TGP Contract”).

8 **Q. What are the material terms of the TGP Contract?**

9 A. The TGP Contract (provided as Attachment FCD-WRK-1) is a standard gas transportation
10 agreement for use under TGP’s FT-A rate schedule. All of the terms and conditions, with
11 the exception of the Company’s termination option described below, are industry standard
12 and are contained in TGP’s Federal Energy Regulatory Commission (“FERC”) approved
13 tariff. The material terms of this agreement are the effective date (November 1, 2021), the
14 term (20 years), that Liberty has the unilateral right to renew the contract, the quantity
15 (40,000 Dth per day), the delivery point (the Londonderry gate station), the referenced FT-
16 A rate (currently \$0.14 per Dth on a volumetric basis), and the ability to effectively
17 terminate the contract after one year as follows: “Shipper shall have a one-time option to
18 reduce the [total quantity] of this Agreement to -0- Dth/d effective November 1, 2022.”
19 This termination right provides cost mitigation protection to the Company and its
20 customers in the event the Commission does not approve the TGP Contract. The details
21 of the TGP Contract are further described in Section III below.

1 **Q. Why did the Company enter into the TGP Contract?**

2 A. The Company's motivation for entering into the TGP Contract was to pursue the least-cost
3 resource alternative to meet the demand needs of Liberty's customers, and to fulfill the
4 Company's obligation to provide safe and reliable natural gas service. The Company
5 entered into the TGP Contract as a result of several key developments and events in recent
6 years that are discussed below.

7 As detailed in Sections IV and V of our Direct Testimony, since the 2012 acquisition by
8 Liberty Energy Utilities (New Hampshire) Corp., the Company has been committed to
9 growth and investment in New Hampshire. The Company has invested in local sales and
10 marketing, expanded its service territory, and modified its tariff in several ways to better
11 provide natural gas as an energy choice to more businesses and residents.¹ As a result,
12 over the 2012 to 2019 time period, Liberty has grown from approximately 85,500
13 customers to more than 95,000 customers, or an increase of over 11%. This growth has
14 occurred in both the residential and the commercial and industrial classes. The Company's
15 initiatives attracted a number of major commercial customers that have converted to natural
16 gas under Liberty ownership.² Geographically, the growth has largely occurred within the

¹ *See, for example*, the Company's tariff enhancements approved in Docket No. DG 13-198 (modifying the service and main extension policy); the Company's approved Managed Expansion Program rates and tariff enhancements expanding to non-heating customers the then existing policy of installing 100 feet of service line at no cost to customers who converted to gas heat in Docket No. DG 16-447; the Company's approved acquisitions in Docket Nos. DG 14-155 (Keene) and DG 16-770 (Concord Steam customers); and the Company's franchise approval in Docket No. DG 15-362 (Pelham and Windham).

² FedEx, UPS, and FW Webb (Londonderry), Brox Industries (Amherst), Continental Paving (Pembroke, Litchfield, and Londonderry), Pike Industries (Hooksett), Lief Farms (Pembroke), former customers of Concord Steam, Prudential Supply (Nashua), Wakefield Vette (Pelham), BAE Systems (Manchester), Concord Hospital Central Boiler, and Fidelity Investments (Merrimack).

1 Company's legacy service territories, but has also reached new areas of those towns where
2 gas service was not previously available (*e.g.*, expansion to the Route 101 corridor in
3 Bedford).

4 This customer growth and associated increase in natural gas demand created the need for
5 the Company to acquire additional gas supply and pipeline capacity to serve that demand.³

6 The Company relies on a single feed from TGP (*i.e.*, the Concord Lateral) for the delivery
7 of gas supply to its service territory in southern and central New Hampshire. In 2014–
8 2015, the Company sought and received Commission approval for a precedent agreement
9 with TGP for capacity on the Northeast Energy Direct (“NED”) Project,⁴ which would
10 have provided Liberty a second pipeline feed and diversified its upstream delivery
11 infrastructure. However, TGP cancelled the NED Project in 2016.⁵ After the cancellation
12 of the NED Project, the Company initiated due diligence on the only two viable options to
13 meet its customers' projected demand requirements, which were a contract for incremental
14 capacity on the existing TGP Concord Lateral, or a Company-sponsored supply and
15 capacity project.

16 In late 2017, based on extensive quantitative and qualitative analysis of the best available
17 information at that time, Liberty announced plans to develop the Granite Bridge Project,

³ The Commission Staff has acknowledged this circumstance, stating: “[W]e nevertheless do find sound the Company's conclusion that its needs for the next five years require additional capacity to support its gas-supply requirements. *Specifically, we find increased pipeline capacity to be necessary ...*” Revised Testimony of The Liberty Consulting Group on behalf of Staff submitted in Docket No. DG 17-198, September 20, 2019, at Bates 010 (emphasis added).

⁴ *See*, Order No. 25,822 (Oct. 2, 2015) in Docket No. DG 14-380.

⁵ *See*, Tennessee Gas Pipeline, LLC, Notice of Withdrawal of Certificate Application, FERC Docket No. CP16-21-000, May 23, 2016.

1 comprised of the Granite Bridge Pipeline (as a second feed to the Company’s service
2 territory) and the Granite Bridge liquefied natural gas (“LNG”) facility (as the primary
3 source of supply for the Granite Bridge Pipeline). The Company filed for Commission
4 approval of its natural gas supply strategy, which included the Granite Bridge Project as
5 the least-cost option (the then-available TGP alternatives being more expensive), in Docket
6 No. DG 17-198.⁶ During the course of that proceeding (*i.e.*, over the 2018 to 2020
7 timeframe),⁷ the Company continued to evaluate the two resource options. Specifically,
8 the Company conducted significant engineering design and other development work
9 necessary to refine the capital costs for the Granite Bridge Project and to support a final
10 determination that the Granite Bridge Project was the least-cost, long-term solution for
11 customers.

12 In refining the cost estimates for the Granite Bridge Project while continuing to pursue
13 both resource options, the Company assured its ability to meet the resource needs of
14 customers on a timely basis. The Company’s pursuit of the Granite Bridge Project
15 demonstrated to TGP and other market participants Liberty’s commitment to identify the
16 least-cost supply and capacity alternative. This approach positioned the Company to
17 continue discussions with TGP regarding service and price options from a position of
18 strength, and created negotiating leverage for Liberty that better enabled the Company to

⁶ See, Petition to Approve Firm Supply and Transportation Agreements and the Granite Bridge Project submitted on December 21, 2017, in Docket No. DG 17-198.

⁷ As part of that docket, the Company engaged with Commission Staff, the Office of Consumer Advocate, and other intervenors through the discovery process, intervenor discussions, and numerous technical sessions. Through that engagement process, Liberty also conducted additional analyses as requested by intervenors and submitted certain updates to its analyses through the discovery process, Supplemental Direct Testimony filed on March 15, 2019, and Second Supplemental Direct Testimony filed on July 31, 2020.

1 negotiate and execute a new contract with TGP on favorable terms. Liberty ultimately
2 received a proposal at significantly lower rates than the indicative rates initially provided
3 by TGP between 2016 and May 2019, and, through its continued negotiations with TGP
4 into 2020, the Company entered into the TGP Contract on July 14, 2020 (*see also*,
5 Attachment FCD-WRK-2 for a timeline with respect to indicative rates from TGP). The
6 TGP Contract pricing is at the lowest possible filed rate under TGP's FERC-approved
7 tariff. The TGP Contract ultimately provides a capacity alternative at a lower cost than the
8 Granite Bridge Project. Therefore, consistent with its Commission-approved resource
9 planning process, the Company suspended all development activity associated with the
10 Granite Bridge Project as the revised TGP option emerged as the least-cost option, and,
11 after the TGP Contract was signed, the Company decided to cancel the project and
12 withdraw its request for approval of the Granite Bridge Project.

13 **Q. Does the TGP option require any additional facilities or investments?**

14 A. Yes. The Company would need to invest in certain on-system distribution enhancement
15 projects to optimize deliveries from TGP and provide additional supply to the high growth
16 areas of the Company's distribution system. The Company's detailed analysis of the costs
17 and benefits associated with the TGP option, including the on-system enhancement
18 projects to optimize deliveries, demonstrates that the TGP Contract is the least-cost
19 solution.

1 **Q. Has the Company assessed measures to mitigate any risk factors associated with the**
2 **TGP Contract?**

3 A. Yes, there are certain risks associated with the TGP Contract, including supply
4 concentration risk at the Dracut receipt point. As outlined in Section VI, the Company has
5 reviewed and considered various options for risk mitigation, such as the procurement of
6 fixed basis products at the Dracut receipt point for the winter period, contracting for
7 upstream capacity and supply deliveries to the Dracut receipt point, as well as the continued
8 assessment of resource options.

9 **III. DESCRIPTION OF THE TGP CONTRACT**

10 **Q. Please review the major attributes of the TGP Contract.**

11 A. The TGP Contract has the following major components:

- 12 • Contract Total Quantity (“TQ”): 40,000 Dth per day;
- 13 • Receipt Point: Dracut, Massachusetts;
- 14 • Delivery Point: the TGP gate station interconnect with Liberty’s high pressure
15 pipeline currently providing transportation service to the Granite Ridge Energy
16 Center, which is a power plant owned by Calpine Corporation, in Londonderry,
17 New Hampshire;
- 18 • Rate: currently effective TGP tariff for FT-A service defined as Zone 6 to Zone 6;
- 19 • In-Service Date: November 1, 2021; and
- 20 • Term: 20 years, with a unilateral right to renew.

1 The TGP Contract is a standard gas transportation agreement for use under TGP's FT-A
2 rate schedule, therefore all of the industry standard terms and conditions are contained in
3 TGP's FERC-approved tariff.⁸

4 **Q. Are Liberty's customers protected in the event that the Commission does not approve**
5 **the TGP Contract in this proceeding?**

6 A. Yes. The Company has a one-time option to effectively terminate the TGP Contract, which
7 protects the Company and its customers in the event the Commission does not approve the
8 TGP Contract. The language in the TGP Contract states: "Shipper shall have a one-time
9 option to reduce the TQ of this Agreement to -0- Dth/d effective November 1, 2022."
10 However, as noted in the TGP Contract: "Shipper must notify Transporter of its intent to
11 exercise the option in writing at any time from the date of this Service Package to no later
12 than July 31, 2022. Shipper's Reduction Option can only be exercised due to a rejection
13 of this Pre-Arranged Deal from the NHPUC."

14 **Q. What would be the implications for customers if the TGP Contract was not approved?**

15 A. Without additional capacity that can deliver incremental natural gas supply into Liberty's
16 service territory in southern and central New Hampshire, the Company will not be able to
17 meet the growing demand requirements of customers (*see also*, Table 2 below) and,
18 therefore, the Company will be forced to impose a moratorium. Absent the TGP Contract,
19 the Company would have to impose a prohibition on any new or expanded use of natural
20 gas in its existing service territory given Liberty's current infrastructure and resource

⁸ See, <https://pipeline2.kindermorgan.com/Tariff/SubIndex.aspx?code=TGP&category=GENERALTERMS>.

1 levels. The Company would also have to continue to rely heavily on its propane facilities⁹
2 to meet existing customer demand. Should these facilities not perform at their design (or
3 nameplate) vaporization rate in the future, Liberty’s existing customers would be at risk of
4 losing natural gas service during the peak winter periods.

5 **Q. Given the contract attributes discussed above, and the time required by the Company**
6 **to implement contingency plans, when would the Company need the Commission’s**
7 **decision regarding the TGP Contract?**

8 A. Liberty is requesting a Commission order on this request to approve the TGP Contract by
9 September 1, 2021.

10 **IV. SUMMARY OF DEMAND/RESOURCE REQUIREMENTS**

11 **Q. Please provide a brief summary of Liberty’s historical and projected natural gas**
12 **demand requirements.**

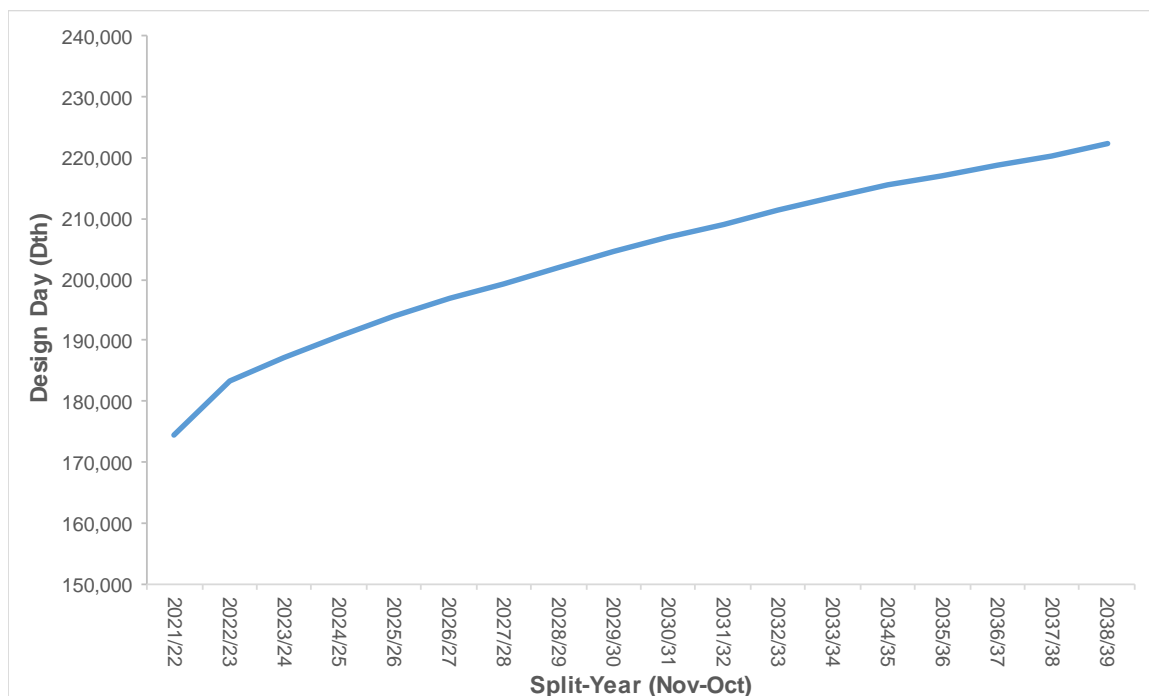
13 A. Liberty has experienced a significant increase in natural gas customers and associated
14 demand since Liberty Energy Utilities (New Hampshire) Corp.’s acquisition of Liberty.
15 The Company has successfully focused on meeting the energy needs of the residents and
16 businesses in New Hampshire by providing natural gas as a fuel choice for various end-use
17 applications and, therefore, the Company has experienced – and continues to experience –
18 an increase in natural gas demand. Over the 2011/12 to 2019/20 split-years,¹⁰ annual
19 demand has increased at a compound annual growth rate (“CAGR”) of approximately 2.4%

⁹ The Company’s propane facilities have been in-service for at least 50 years with certain facilities having been in service for over 70 years.

¹⁰ The split-year is defined as the twelve months from November through October.

1 per year. With respect to projected demand requirements,¹¹ annual demand is forecasted
2 to increase at a CAGR of approximately 1.6%; while Design Day demand (shown in Figure
3 1 below) is forecasted to increase at a CAGR of approximately 1.4% over the 2021/22 to
4 2038/39 forecast horizon.

5 **Figure 1: Updated Base Case Design Day Demand Forecast**



6
7 **Q. How was the demand forecast developed?**

8 A. As discussed above, the Company's decision to enter into the TGP Contract was based on
9 the extensive resource evaluation and analysis detailed in Docket No. DG 17-198. Thus,
10 the demand forecast shown in Figure 1 above is consistent with the Updated Base Case

¹¹ The Company has submitted natural gas demand forecasts in Docket Nos. DG 13-313, DG 14-380, DG 15-494, DG 17-152, and DG 17-198. In those dockets, the Company has consistently projected demand for natural gas to increase over the various forecast periods.

1 demand forecast provided in Docket No. DG 17-198, which was most recently updated in
 2 July 2020 to reflect the withdrawal of the Granite Bridge Project.¹²

3 **Q. Does the Updated Base Case demand forecast from Docket No. DG 17-198 continue**
 4 **to be a reasonable projection of customers’ requirements?**

5 A. Yes. The Updated Base Case demand forecast continues to be reasonable and is supported
 6 by actual experience over the most recent three years. Indeed, the actual usage has
 7 exceeded the forecast. As shown in Table 1 below, the normalized actual demand¹³ was
 8 353,058 Dth higher in 2017/18 than the Company’s forecast (a 2.4% difference) and
 9 550,562 Dth higher in 2018/19 than the Company’s forecast (a 3.7% difference). Focusing
 10 on the most recent data (*i.e.*, winter of 2019/20),¹⁴ normalized actual demand exceeded the
 11 Company’s forecast by 259,986 Dth (a 2.6% difference).

12 **Table 1: Forecast Versus Actual Demand (Dth)**

Split-Year (Nov-Oct)	Updated Base Case – Normal Year	Normalized Actual Demand	Difference	% Difference
2017/18	14,475,900	14,828,959	353,058	2.4%
2018/19	14,758,927	15,309,489	550,562	3.7%
2019/20 Winter	9,845,553	10,105,539	259,986	2.6%

12 ¹² The July 2020 Updated Base Case demand forecast in Docket No. DG 17-198 built upon the demand forecast methodology and results from the Company’s 2017 Least Cost Integrated Resource Plan (“LCIRP”), and extended the econometric models developed in the LCIRP through 2038 with certain modifications and updates to the out-of-model assumptions. *See*, Second Supplemental Direct Testimony of Francisco C. DaFonte and William R. Killeen in Docket No. DG 17-198, filed July 31, 2020, at Bates 013-015.

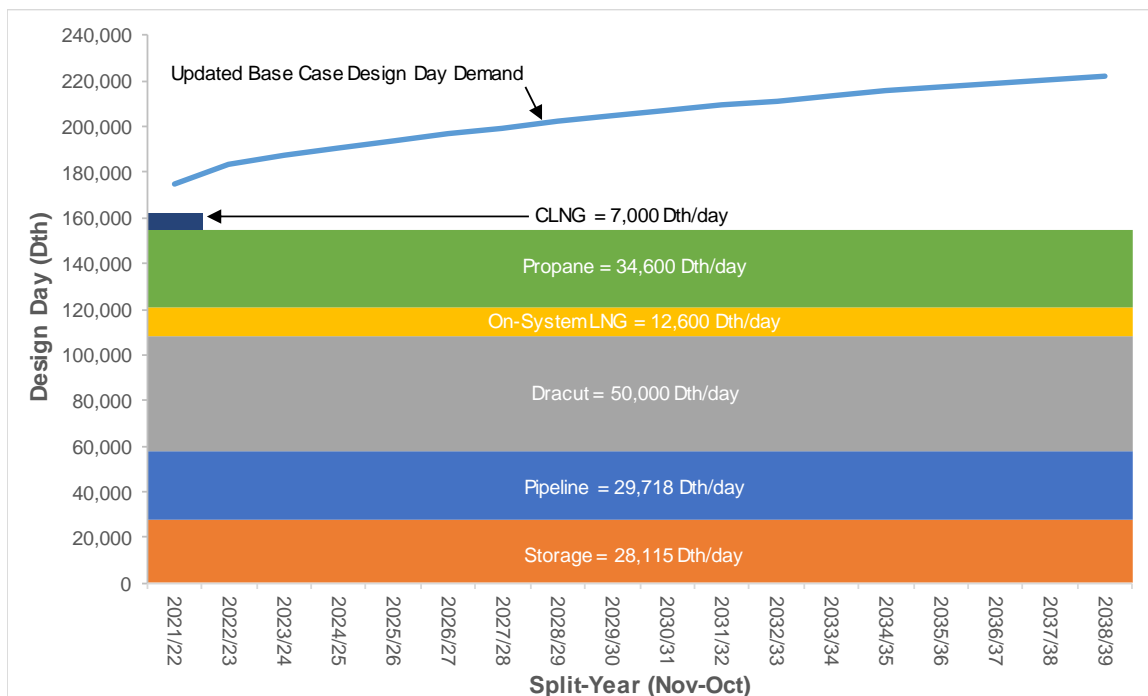
13 ¹³ “Normalized actual demand” represents actual demand adjusted for the impact of weather.

14 ¹⁴ 2019/20 Winter represents the November 2019 through March 2020 period.

1 **Q. How does the Updated Base Case demand forecast compare to the Company’s gas**
 2 **supply resources?**

3 A. The Company’s current resource portfolio is comprised of the following resources: (1)
 4 long-haul and short-haul transportation capacity; (2) underground storage; and (3) on-
 5 system LNG and propane facilities. Figure 2 below illustrates Liberty’s existing Design
 6 Day resources relative to the Updated Base Case Design Day demand forecast.

7 **Figure 2: Updated Base Case Design Day Demand and Resource Portfolio¹⁵**



8

¹⁵ The Design Day resources include the contract with Constellation LNG (“CLNG”) through 2021/22 and the contract for long-term capacity on the PNGTS Portland XPress (“PXP”) Project, which the Commission acknowledged in Order No. 26,409 at 14 (Oct. 6, 2020) had been approved in the Company’s 2018 cost-of-gas proceeding, Docket No. DG 18-137.

1 As shown in Figure 2 above, Liberty has a growing resource deficit on Design Day.
 2 Specifically, as calculated in Table 2 below, and absent the TGP Contract, the Design Day
 3 resource deficiency is 12,585 Dth in 2021/22 and increases to 67,177 Dth in 2038/39.

4 **Table 2: Updated Base Case Design Day Resource Shortfall (Dth)**

Split-Year (Nov-Oct)	Updated Base Case Design Day Demand	Current Design Day Resources¹⁶	Reserve / (Deficiency)
2021/22	174,618	162,033	(12,585)
2022/23	183,409	155,033	(28,376)
2023/24	187,181	155,033	(32,148)
2024/25	190,657	155,033	(35,624)
2025/26	193,952	155,033	(38,919)
2026/27	196,975	155,033	(41,942)
2027/28	199,349	155,033	(44,316)
2028/29	202,008	155,033	(46,975)
2029/30	204,467	155,033	(49,434)
2030/31	206,942	155,033	(51,909)
2031/32	209,168	155,033	(54,135)
2032/33	211,373	155,033	(56,340)
2033/34	213,536	155,033	(58,503)
2034/35	215,447	155,033	(60,414)
2035/36	216,995	155,033	(61,962)
2036/37	218,679	155,033	(63,646)
2037/38	220,381	155,033	(65,348)
2038/39	222,210	155,033	(67,177)

5

¹⁶ The Design Day resources include the propane facilities at the design (or nameplate) vaporization rate of approximately 34,600 Dth per day and assumes the contract with CLNG terminates in 2021/22. Given the current deliverability limitations on the TGP Concord Lateral, the PNGTS PXP contract does not provide incremental Design Day supply to the Company's city-gates.

1 Thus, considering both the current and projected needs of customers,¹⁷ Liberty determined
2 it necessary to acquire additional delivery capacity on the TGP Concord Lateral to serve
3 customers' growing demand requirements.¹⁸

4 **V. EVALUATION OF RESOURCE ALTERNATIVES**

5 **Q. What actions has the Company taken to meet the forecasted demand requirements of**
6 **its customers?**

7 A. In late 2015, Liberty received Commission approval for a 20-year precedent agreement
8 with TGP for 115,000 Dth per day of firm transportation capacity on the proposed NED
9 Project.¹⁹ The contract on the NED Project would have provided a second pipeline feed
10 into the west end of the Company's distribution system and diversified its upstream
11 delivery infrastructure. However, the NED Project was cancelled by TGP in May 2016.²⁰
12 After the cancellation of the NED Project, Liberty again conducted a rigorous evaluation
13 of reasonably available resource options in the marketplace to meet its demand
14 requirements using the Commission-approved resource planning standards.

15 Specifically, over the 2016 to 2017 timeframe, the Company identified, reviewed, and
16 evaluated the only two available and viable options for incremental capacity to meet its

¹⁷ The Commission has also supported this approach, stating: "Pipeline capacity is not always available in increments that match precisely with an LDC's load growth. Consequently, it is prudent and reasonable for an LDC, when entering into a capacity agreement, to acquire the capacity necessary to serve not only current load but also potential future load." Order No. 25,822 (Oct. 2, 2015) in Docket No. DG 14-380, at 25-26.

¹⁸ As noted in Footnote 1 above, the Commission Staff acknowledged the need for increased pipeline capacity to meet Liberty's projected demand requirements. *See*, Revised Testimony of The Liberty Consulting Group on behalf of Staff submitted in Docket No. DG 17-198, September 20, 2019, at Bates 010.

¹⁹ *See*, Order No. 25,822 (Oct. 2, 2015) in Docket No. DG 14-380.

²⁰ *See*, Tennessee Gas Pipeline, LLC, Notice of Withdrawal of Certificate Application, FERC Docket No. CP16-21-000, May 23, 2016.

1 customers' demand requirements: a contract for incremental capacity on the TGP Concord
2 Lateral, or a Company-sponsored capacity and supply project. The TGP Concord Lateral
3 was, and continues to be, fully subscribed and, therefore, any requests for TGP to increase
4 capacity and deliverability would have, at a minimum, required TGP to construct
5 incremental facilities on the Concord Lateral. Thus, the Company had confidential
6 discussions with TGP regarding such an expansion of the TGP Concord Lateral and
7 received capital cost estimates and indicative rates in August 2016 and March 2017 for an
8 expansion of approximately 75,000 Dth per day. Those daily indicative rates received from
9 TGP in 2016 and 2017 for an expansion of the TGP Concord Lateral ranged from [REDACTED] to
10 [REDACTED] per Dth. The second option, a Company-sponsored project, was the Granite Bridge
11 Project, which included two components -- the Granite Bridge Pipeline as a second delivery
12 feed to the Company's service territory and the Granite Bridge LNG facility as the primary
13 source of supply to the Granite Bridge Pipeline.²¹ Liberty's quantitative analyses
14 demonstrated that the Granite Bridge Project was the preferred, least-cost option compared
15 to the then-available TGP alternatives; and the qualitative assessment showed that, among
16 other things, the Granite Bridge Project would diversify the Company's resource portfolio
17 by reducing its reliance on Dracut gas supply purchases. Thus, the Company filed its
18 petition for approval of the Granite Bridge Project with the Commission on December 22,
19 2017, in Docket No. DG 17-198.

²¹ As described in the Company's initial filing in Docket No. DG 17-198, based on conceptual engineering and feasibility studies, the preliminary capital cost estimate for the Granite Bridge Pipeline resulted in an estimated levelized annual cost of approximately \$12.8 million, or unit cost of approximately \$0.47 per Dth per day (which assumed a capacity of 75,000 Dth per day to compare on an "apples-to-apples" basis with the TGP option).

1 **Q. Did the Company continue to have discussions with TGP subsequent to the initial**
2 **filing in December 2017 in Docket No. DG 17-198?**

3 A. Yes. After making its initial filing in Docket No. DG 17-198, Liberty continued to refine
4 its analysis of the two resource options to confirm that the Granite Bridge Project remained
5 the prudent option prior to commencement of any construction, which included discussions
6 with TGP regarding the options available to the Company on the Concord Lateral. In May
7 2019, TGP confirmed the August 2016 and March 2017 price estimates and also provided
8 capital costs and daily indicative rates for a lower capacity contract volume of 50,000 Dth
9 per day from two receipt points (CLNG at Everett, Massachusetts, or Dracut,
10 Massachusetts), which ranged from [REDACTED] to [REDACTED] per Dth. Thus, based on the information
11 provided by TGP in 2016, 2017, and again in May 2019, the Granite Bridge Pipeline
12 continued to be the least-cost delivery option²² and the Company continued to work on
13 developing the Granite Bridge Project as its best long-term solution to meet customers'
14 needs.

15 **Q. Did the Company conduct additional analyses of the two resource options following**
16 **Staff's and other parties' testimony in September 2019 in Docket No. DG 17-198?**

17 A. Yes, the Company continued to analyze and pursue both resource options to ensure that
18 the ultimate solution was the least-cost option in the interest of customers. On October 16,
19 2019, Liberty announced that the evaluation of the Granite Bridge Pipeline had been

²² As described in the Company's March 15, 2019, Supplemental Direct Testimony in Docket No. DG 17-198, the updated levelized annual cost estimate for the Granite Bridge Pipeline was approximately \$17.6 million, or a unit cost of \$0.64 per Dth per day (assuming a capacity of 75,000 Dth per day to compare to the TGP option).

1 completed, representing a 70% design stage, and that the Company was issuing a request
2 for proposals for contractor bids based on that design to further refine the capital cost
3 estimate.²³ Shortly before that disclosure, the Company had again contacted TGP to obtain
4 updated expansion cost estimates. At this point, and for the first time, the Company
5 received from TGP significantly lower capital cost estimates for 25,000 Dth per day,
6 50,000 Dth per day, and 75,000 Dth per day delivery options. These new daily indicative
7 rates ranged from [REDACTED] to [REDACTED] per Dth. These revised TGP estimates, which were
8 received at the end of October 2019, were significantly lower than the prior estimates
9 provided by TGP in 2016, 2017, and May 2019. Based on an initial assessment of the
10 revised TGP estimates, Liberty determined that the TGP option could be cost competitive
11 with the Granite Bridge Project. Thus, the Company continued to engage with TGP to
12 better understand and further analyze the resource options provided by TGP relative to the
13 Granite Bridge Project.

14 **Q. Subsequent to receiving the revised estimates and rates from TGP in October 2019,**
15 **please summarize the Company's on-going discussions with TGP.**

16 A. Liberty requested additional capital cost and price scenario options from TGP to better
17 understand and further analyze the revised TGP estimates received in late October 2019.
18 In response to these requests for alternative scenarios, the Company received additional
19 updated information from TGP in December 2019 and January 2020 that further reduced
20 the cost estimates from those provided in October 2019. Specifically, TGP provided

²³ See, *Expedited Motion to Extend Date for Filing Rebuttal Testimony* submitted in Docket No. DG 17-198, October 16, 2019.

1 estimates for 25,000 Dth per day and 50,000 Dth per day delivery options with daily
2 indicative rates from [REDACTED] to [REDACTED] per Dth. Based on these even lower estimates, Liberty
3 concluded that, if these TGP options and prices materialized, then the Granite Bridge
4 Pipeline would no longer be the least-cost delivery option. The Company thus largely
5 suspended its activities associated with the Granite Bridge Project to focus on assessing
6 the TGP options.

7 **Q. Did the Company receive additional information from TGP?**

8 A. Yes. In April 2020, again at the request of Liberty, TGP provided revised information to
9 the Company for various scenarios (*i.e.*, different quantities to be delivered to different
10 metering stations along the TGP Concord Lateral) with lower cost estimates than the
11 revised cost estimates provided to Liberty in December 2019 and January 2020.

12 **Q. Did the Company narrow the options provided by TGP?**

13 A. Yes. To address the high growth areas on the Company's distribution system (*i.e.*, Nashua,
14 Manchester, Londonderry, and surrounding towns), the Company focused on two
15 alternatives provided by TGP in April 2020 that were considered the best options for
16 meeting that demand growth and optimizing the TGP deliveries.

17 **Q. Please describe the two TGP alternatives that the Company evaluated.**

18 A. The first TGP alternative, hereinafter referred to as the "TGP Nashua/Manchester
19 Alternative," consisted of a 40,000 Dth per day contract originating at Dracut and
20 delivering 20,000 Dth per day to the Nashua gate station and 20,000 Dth per day to the
21 Manchester gate station. Under this alternative, TGP would need to "loop" the existing

1 Nashua/Hudson Lateral. That is, to deliver the higher quantities of natural gas, TGP would
2 have to construct a new pipeline that would effectively parallel the existing pipeline, which
3 runs through densely populated neighborhoods. This option resulted in a daily indicative
4 rate of [REDACTED] per Dth for an annual cost of approximately [REDACTED] million.²⁴

5 The second TGP alternative, hereinafter referred to as the “TGP Londonderry Alternative,”
6 consisted of a 40,000 Dth per day contract originating at Dracut and delivering to the
7 Londonderry gate station. Because there was no need for TGP to incur the capital costs to
8 loop the existing Nashua/Hudson Lateral in this alternative, or to engage in any other
9 substantial construction, the daily indicative rate was the lowest possible rate under TGP’s
10 FERC-approved tariff of \$0.14 per Dth, resulting in an annual cost of approximately \$2.0
11 million.²⁵

12 **Q. Please explain how deliveries from TGP would be optimized.**

13 A. Both the TGP Nashua/Manchester and TGP Londonderry Alternatives would require
14 Liberty to complete certain on-system distribution enhancement projects to optimize
15 deliveries. While there are different levels of on-system investment needed under the two
16 TGP alternatives, there are certain common investments across both alternatives.
17 Specifically, under both TGP alternatives, the Company would need to upgrade the Candia
18 Road Station and uprate a feeder line in Manchester. These on-system enhancement

²⁴ Annual cost calculated as 40,000 Dth per day multiplied by the rate of [REDACTED] per Dth, multiplied by 365 days.

²⁵ Annual cost calculated as 40,000 Dth per day multiplied by the rate of \$0.14 per Dth, multiplied by 365 days.

1 projects would provide an increase in pressure support and additional supply to the parts
2 of the Company's distribution system that are experiencing high growth.

3 **Q. Please compare the total estimated capital cost, including the Company's on-system**
4 **enhancement projects, under the TGP Nashua/Manchester and TGP Londonderry**
5 **Alternatives.**

6 A. The estimated capital costs for the TGP Nashua/Manchester Alternative consists of TGP's
7 cost to loop the existing Nashua/Hudson Lateral, which runs through densely populated
8 neighborhoods, and the Company's investment in certain on-system enhancements as
9 follows:

10 • TGP Costs:

11 ○ Nashua/Hudson Lateral Loop: [REDACTED] million

12 ○ Remote Crossover: [REDACTED] million

13 ○ TGP Sub-total: [REDACTED] million

14 • Company On-System Enhancements:

15 ○ Replace feeder line in Nashua: [REDACTED] million

16 ○ Cross Souhegan River: [REDACTED] million

17 ○ Company On-System Enhancements Sub-total: [REDACTED] million

18 Therefore, under the TGP Nashua/Manchester Alternative, TGP estimated [REDACTED] million
19 in capital costs and the Company on-system capital investments are estimated to be [REDACTED]
20 million resulting in a total capital cost estimate for this alternative of \$39.0 million.

1 As noted earlier, TGP would require no material capital costs for the TGP Londonderry
2 Alternative. Thus, the estimated capital costs for the TGP Londonderry Alternative
3 consists of the following on-system distribution enhancement projects:

- 4 • Company On-System Enhancements:
 - 5 ○ Granite Ridge Station: [REDACTED] million
 - 6 ○ Budweiser line in Nashua: [REDACTED] million
 - 7 ○ Brown Avenue pipeline and regulator in Manchester: [REDACTED] million
 - 8 ○ Daniel Webster Highway Merrimack station in Manchester: [REDACTED] million
 - 9 ○ Company On-System Enhancements Sub-total: \$45.0 million

10 In total, the capital cost estimate is \$45.0 million under the TGP Londonderry Alternative.

11 **Q. Please provide a comparison of the cost impacts to customers associated with the TGP**
12 **Nashua/Manchester and TGP Londonderry Alternatives.**

13 A. To compare the cost of service consequences of the estimated capital costs for the two TGP
14 alternatives, the Company calculated the annual cost of service associated with the total
15 capital cost estimates, then levelized those costs so they could be combined with the fixed,
16 annual TGP Contract costs. The annual cost of service under the TGP Nashua/Manchester
17 Alternative is approximately \$10.2 million, of which [REDACTED] million represents the annual
18 TGP Contract cost²⁶ and [REDACTED] million is the levelized annual cost associated with the
19 Company's on-system enhancement projects. In the TGP Londonderry Alternative, the

²⁶ Annual cost calculated as 40,000 Dth per day multiplied by the rate of [REDACTED] per Dth, multiplied by 365 days.

1 annual cost of service is approximately \$6.5 million, with the annual TGP Contract cost
2 representing \$2.0 million²⁷ and the Company's levelized annual cost for the on-system
3 investment representing \$4.5 million. Therefore, the annual cost under the TGP
4 Londonderry Alternative is approximately \$3.7 million (over 30%) lower than the annual
5 cost of service associated with the TGP Nashua/Manchester Alternative.

6 **Q. In addition to the cost consequences analysis, did the Company evaluate the**
7 **qualitative benefits associated with each TGP alternative?**

8 A. Yes, it did. First, there are some common benefits associated with both TGP alternatives.
9 Specifically, both TGP alternatives would provide for an increase in on-system pressure
10 support and additional supply to certain high growth areas on the Company's distribution
11 system. The addition of either TGP alternative to Liberty's resource portfolio would also
12 allow the Company to reduce reliance on its aging propane facilities. Furthermore, both
13 TGP alternatives would provide the Company with risk mitigation regarding the CLNG
14 contracting process.

15 However, the TGP Londonderry Alternative would provide additional benefits, including:

- 16 • Nashua
 - 17 ○ Avoids significant construction risk associated with work on the
 - 18 Nashua/Hudson Lateral, which currently runs through several residential
 - 19 neighborhoods and near many houses;

²⁷ Annual cost calculated as 40,000 Dth per day multiplied by the rate of \$0.14 per Dth, multiplied by 365 days.

- 1 ○ Provides a redundant feed to the Nashua area;
- 2 ○ Equivalent pressure upgrades to Nashua-Bridge Street as the TGP
- 3 Nashua/Manchester Alternative, but higher pressure at Nashua-Warren
- 4 Lane and Budweiser locations, two distant ends of the distribution system;
- 5 and
- 6 ○ Reduces flow/stress on the existing Nashua/Hudson Lateral, which allows
- 7 for future growth.
- 8 • Manchester
- 9 ○ Equivalent pressure upgrades to Manchester-Elm Street as the TGP
- 10 Nashua/Manchester Alternative, but higher pressure at Manchester-Brown
- 11 Ave and Saint-Gobain locations; and
- 12 ○ Relieves flow/stress on the Candia Road facilities, which supports future
- 13 growth.

14 **Q. Are there other qualitative benefits associated with the TGP Londonderry**
15 **Alternative?**

16 A. Yes, a significant benefit of the TGP Londonderry Alternative would be the increase in
17 delivery pressure from TGP. In the TGP Nashua/Manchester Alternative, the guaranteed
18 minimum pressure from TGP would remain at the existing level of 100 PSI at all Liberty
19 interconnects with TGP. However, in the TGP Londonderry Alternative, the TGP
20 minimum pressure guarantee at Londonderry is 300 PSI, which is a 200% increase
21 compared to the 100 PSI pressure guarantee at the other gate stations. This increase in the

1 guaranteed minimum pressure from TGP is a significant operational enhancement as the
2 Company requires a minimum of 250 PSI inlet pressure in order to maintain adequate
3 pressure on its distribution system. To date, the Company has not experienced inlet
4 pressures below 250 PSI. However, the pressure guarantee of 300 PSI at Londonderry
5 provides a much greater level of flexibility and reliability for Liberty's distribution systems
6 in Nashua and Manchester.

7 Lastly, the on-system distribution facilities associated with the TGP Londonderry
8 Alternative could be phased in over time, providing another cost benefit to customers and
9 reducing the risk associated with constructing all the required facilities in a shorter period
10 of time.

11 **Q. Please summarize the Company's analysis regarding the TGP alternatives and its**
12 **conclusion.**

13 A. As described above, the cost of the TGP Londonderry Alternative is over 30% lower than
14 the TGP Nashua/Manchester Alternative. In addition, the TGP Londonderry Alternative
15 provides significant qualitative benefits, including: (i) secondary feeds into the Nashua and
16 Manchester distribution systems; (ii) a TGP minimum guaranteed pressure of 300 PSI at
17 the Londonderry interconnect (a 200% increase in the TGP minimum guaranteed pressure
18 when compared to the other TGP/Liberty interconnects), which increases on-system
19 pressure at key points on the distribution system; (iii) reductions in flow/stress in certain
20 distribution locations; and (iv) the ability to phase in the on-system facilities, thus
21 spreading out the cost impacts and reducing the risk associated with constructing all the
22 required facilities in a shorter period of time. As a result, Liberty determined that the TGP

1 Londonderry Alternative is the better of the two TGP alternatives. The Company thus
2 executed the TGP Contract for 40,000 Dth per day of capacity on July 14, 2020. In
3 addition, and consistent with its Commission-approved resource planning process, the
4 revised TGP option is now the least-cost option and, therefore, the Company made the
5 decision to cancel the Granite Bridge Project and withdraw its request for approval of the
6 Granite Bridge Project in Docket No. DG 17-198 on July 31, 2020.²⁸

7 **Q. How would the inclusion of the TGP Contract impact the Company's resource**
8 **portfolio?**

9 A. The TGP Contract would provide an additional 40,000 Dth per day to meet demand
10 requirements starting in the 2021/22 split-year (the effective date of the TGP Contract is
11 November 1, 2021). Table 3 below summarizes the Company's Updated Base Case Design
12 Day demand forecast and resource portfolio with the addition of the TGP Contract.

²⁸ See, the Company's Second Supplemental Direct Testimony submitted in Docket No. DG 17-198 on July 31, 2020.

1 **Table 3: Updated Base Case Design Day Resource Shortfall (Dth)**

Split-Year (Nov-Oct)	Updated Base Case Design Day Demand	Current Design Day Resources²⁹	Reserve / (Deficiency)	Reserve / (Deficiency), including TGP Contract
2021/22	174,618	162,033	(12,585)	27,415
2022/23	183,409	155,033	(28,376)	11,624
2023/24	187,181	155,033	(32,148)	7,852
2024/25	190,657	155,033	(35,624)	4,376
2025/26	193,952	155,033	(38,919)	1,081
2026/27	196,975	155,033	(41,942)	(1,942)
2027/28	199,349	155,033	(44,316)	(4,316)
2028/29	202,008	155,033	(46,975)	(6,975)
2029/30	204,467	155,033	(49,434)	(9,434)
2030/31	206,942	155,033	(51,909)	(11,909)
2031/32	209,168	155,033	(54,135)	(14,135)
2032/33	211,373	155,033	(56,340)	(16,340)
2033/34	213,536	155,033	(58,503)	(18,503)
2034/35	215,447	155,033	(60,414)	(20,414)
2035/36	216,995	155,033	(61,962)	(21,962)
2036/37	218,679	155,033	(63,646)	(23,646)
2037/38	220,381	155,033	(65,348)	(25,348)
2038/39	222,210	155,033	(67,177)	(27,177)

2

3 As shown in Table 3, absent the additional capacity provided by the TGP Contract, Liberty

4 would have a resource deficiency on Design Day of 12,585 Dth in 2021/22. However, the

5 addition of the 40,000 Dth per day from the TGP Contract would provide the Company

6 with sufficient resources to meet demand requirements through the 2025/26 split-year,

7 assuming the current level of portfolio resources (*e.g.*, propane facilities at the design

8 vaporization rate of approximately 34,600 Dth per day and the termination of the CLNG

²⁹ The Design Day resources include the propane facilities at the design (or nameplate) vaporization rate of approximately 34,600 Dth per day and assumes the contract with CLNG terminates in 2021/22. Given the current deliverability limitations on the TGP Concord Lateral, the PNGTS PXP contract does not provide incremental Design Day supply to the Company's city-gates.

1 contract). By the end of the forecast horizon, even with the addition of the TGP Contract,
2 the Design Day resource shortfall is approximately 27,000 Dth per day (over 12% of the
3 total Design Day demand).

4 **VI. TGP CONTRACT RISKS AND MITIGATION**

5 **Q. Does reliance on the Dracut receipt point create concentration risk?**

6 A. Yes. As detailed through various testimony and responses to discovery requests in prior
7 dockets (*e.g.*, Docket Nos. DG 14-380 and DG 17-198), the Company has concerns
8 regarding its reliance on Dracut as a receipt point, including liquidity issues and high price
9 and volatility levels at Dracut. With the addition of the TGP Contract to the current
10 resource portfolio, Liberty will increase its service from the Dracut receipt point by 80%
11 (from 50,000 Dth per day to 90,000 Dth per day). As a result, the 90,000 Dth per day from
12 Dracut will represent approximately 45% of the Company's Design Day resources.³⁰

13 **Q. How will the Company address the increase in its concentration risk at the Dracut**
14 **receipt point?**

15 A. To address the liquidity and volatility of the pricing associated with the Dracut receipt
16 point, the Company plans to pursue the following risk mitigation strategies: (i) continue to
17 procure fixed-basis products at the Dracut receipt point for the winter period; (ii) review
18 long-term gas supply contracts deliverable to Dracut; (iii) continue to assess upstream
19 contracting options (*e.g.*, incremental capacity on PNGTS that could provide firm service

³⁰ Using the Design Day Resources of 155,033 Dth as illustrated in Table 2 for 2022/23 and increasing that by the 40,000 Dth associated with the TGP Contract, the 90,000 Dth at Dracut represents approximately 45% of the 195,033 Dth of Design Day resources.

1 to Dracut from a more liquid receipt point); and (iv) monitor and explore any new supply
2 and capacity options that may be proposed. Similar to the approach used and approved by
3 the Commission for other resource-related decisions, the Company will continue to rely on
4 the integrated resource planning process for identifying, evaluating both quantitatively and
5 qualitatively, and communicating its resource analysis and recommendations.

6 **Q. Does the contracted volume associated with the TGP Contract help the Company**
7 **mitigate demand forecasting and supply risks?**

8 A. Yes. While there may be demand forecasting risks (*e.g.*, potential changes in economic,
9 social, or political conditions that may impact the demand for natural gas) and supply risks
10 (*e.g.*, future availability and pricing of alternatives), the addition of the TGP Contract
11 provides 40,000 Dth per day of capacity to meet a portion of the overall projected demand
12 requirements and affords the Company additional time to review and evaluate resource
13 options in the future, as needed. Given the most recent three years of actual demand
14 relative to projected demand requirements (*see*, Table 1 above), the Company would likely
15 face a resource shortfall sooner if the volume was lower than the contracted TQ of 40,000
16 Dth. Conversely, given the long-term nature of the TGP Contract (20 years), there is a risk
17 of lower capacity utilization with a volume significantly higher than 40,000 Dth per day.
18 For illustrative purposes, Table 4 below provides the projected Design Day resource
19 shortfall (shown in italics) for contract volumes of 20,000 Dth per day and 60,000 Dth per
20 day, relative to the TGP Contract volume of 40,000 Dth per day.

1 **Table 4: Updated Base Case Design Day Resource Shortfall (Dth) – Volume Scenarios³¹**

Split-Year (Nov-Oct)	Reserve / (Deficiency) – Scenario 1 (20,000 Dth/d)	Reserve / (Deficiency) – TGP Contract (40,000 Dth/d)	Reserve / (Deficiency) – Scenario 2 (60,000 Dth/d)
2021/22	7,415	27,415	47,415
2022/23	(8,376)	11,624	31,624
2023/24	(12,148)	7,852	27,852
2024/25	(15,624)	4,376	24,376
2025/26	(18,919)	1,081	21,081
2026/27	(21,942)	(1,942)	18,058
2027/28	(24,316)	(4,316)	15,684
2028/29	(26,975)	(6,975)	13,025
2029/30	(29,434)	(9,434)	10,566
2030/31	(31,909)	(11,909)	8,091
2031/32	(34,135)	(14,135)	5,865
2032/33	(36,340)	(16,340)	3,660
2033/34	(38,503)	(18,503)	1,497
2034/35	(40,414)	(20,414)	(414)
2035/36	(41,962)	(21,962)	(1,962)
2036/37	(43,646)	(23,646)	(3,646)
2037/38	(45,348)	(25,348)	(5,348)
2038/39	(47,177)	(27,177)	(7,177)

2

3 As illustrated in Table 4 above, if the contract volume was 20,000 Dth per day, the

4 Company would immediately face a Design Day resource deficiency in year 2 of the

5 forecast. However, if the contract volume was 60,000 Dth per day, the resource deficiency

6 does not occur until year 14 of the forecast.

³¹ The resource deficiency was calculated based on the Design Day resources shown in Table 2 above, which includes the propane facilities at the design (or nameplate) vaporization rate of approximately 34,600 Dth per day and assumes the contract with CLNG terminates in 2021/22.

1 **Q. Are there any Concord Lateral construction risks associated with the TGP Contract?**

2 A. No. There are no construction-related risks because the capacity associated with the TGP
3 Contract does not require any construction. Accordingly, there are no concerns with
4 potential delays in the proposed in-service date of November 1, 2021, for the TGP Contract.

5 **Q. Given the on-system distribution enhancements required to optimize the deliveries**
6 **associated with the TGP Contract, is the Company concerned regarding potential**
7 **delays in the proposed in-service date for the on-system enhancement projects?**

8 A. As discussed above, the Company has identified certain on-system distribution
9 enhancements necessary to optimize the incremental supply from TGP. These on-system
10 enhancements would be phased in over time to reduce construction delays and minimize
11 costs for customers, while ensuring the benefits of the new TGP volumes are available to
12 meet system demand.³²

13 **VII. CONCLUSIONS AND RECOMMENDATION**

14 **Q. Please summarize your conclusions and recommendation.**

15 A. Liberty recommends the Commission approve the Company's contract with TGP for
16 40,000 Dth per day of capacity from the Dracut receipt point to the Londonderry delivery

³² The Company's anticipated schedule for these on-system enhancements is as follows:

2021 – Commence design and permitting;

2022 – Rebuild the point of delivery from TGP in Manchester at Candia Road, build a new point of delivery into the distribution system from the Granite Ridge transmission pipeline, and then build a pipeline from the new point of delivery into the Manchester distribution system;

2023 – Uprate the pressure of the existing 130 psig sub-transmission feeder in Manchester, and build a river crossing from the new pipeline into the distribution system in Merrimack; and

2024 – Build a pipeline that connects the Granite Ridge transmission station constructed in 2022 to the end of the existing Nashua sub-transmission feeder near the Budweiser plant in Merrimack.

1 point. Based on the Company's quantitative and qualitative analysis, the TGP Contract is
2 the least-cost resource alternative to serve customers. The addition of the TGP Contract to
3 the Company's current resource portfolio provides 40,000 Dth per day of capacity to meet
4 a portion of the overall projected demand requirements and affords the Company additional
5 time to review and evaluate resource options in the future, as needed.

6 **Q. Does this conclude your Direct Testimony?**

7 **A.** Yes, it does.