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October 11, 2013

Mrs. Susan M. Hudson, Clerk
Vermont Public Service Board
112 State Street
Montpelier, Vermont 05620

Re: Docket 7970 -VGS Addison Expansion

Dear Mrs. Hudson:

Attached for filing with the Public Service Board are the original and seven copies of the Initial Brief of the Department in the above-referenced matter. Please let me know if you have any questions.

Sincerely,

Louise C. Porter

Louise C. Porter
Special Counsel

cc: Service List

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 7970

Petition of Vermont Gas Systems, Inc. for a certificate of public good, pursuant to 30 V.S.A. § 248, authorizing the construction of the "Addison Natural Gas Project" consisting of approximately 43 miles of new natural gas transmission pipeline in Chittenden and Addison Counties, approximately 5 miles of new distribution mainlines in Addison County, together with three new gate stations in Williston, New Haven and Middlebury, Vermont

INITIAL BRIEF
OF
THE VERMONT DEPARTMENT OF PUBLIC SERVICE

The Vermont Department of Public Service Department (Department) proposes that the Vermont Public Service Board (Board) make the findings and conclusions stated below. In summary, the pipeline and associated infrastructure at issue in this proceeding constitute an important addition to the service territory of Vermont Gas Systems, Inc. (Vermont Gas), and is needed to provide significant economic and environmental benefits to the state. With appropriate conditions and post-certification review procedures, construction of the Project will not have undue adverse effects, will satisfy the criteria set forth in 30 V.S.A. § 248, and will promote the general good of the State. Accordingly, the Department recommends that the Board issue a Certificate of Public Good (Certificate or CPG) with the conditions and post-certification review procedures recommended herein.

The Department's initial brief is structured in the form of a partial proposal for decision. The Department takes no position on those section of 30 V.S.A. § 248 not discussed below. With respect to those sections listed, the Department recommends that the Board make findings and adopt the reasoning set forth herein.

This proceeding addresses a proposal by Vermont Gas to construct the Addison Natural Gas Project (Project), which consists of approximately 43 miles of new 12-inch transmission pipeline, extending from Colchester to Middlebury, approximately 5 miles of new 6-inch

distribution mainlines that will extend distribution service to Vergennes (4 miles) and Middlebury (1 mile), and three new pressure regulation stations (gate stations). Vermont Gas, Docket No. 7970, Petition of 12/20/12, at 1-2.

Section 248(b)(1) – Orderly Development of the Region

Proposed Findings

1. Prior to its initial filing (December 2012 Filing), Vermont Gas held meetings with representatives of each of the affected towns and regional planning commissions. Vermont Gas received feedback at those meetings which was given due consideration. Wark pf. at 8.
2. In response to concerns raised regarding certain aspects of the December 2012 Filing, Vermont Gas undertook additional community outreach efforts and sought additional stakeholder input. It then proposed a number of alignment revisions in a February 28, 2013 supplemental filing, which sets out the route currently under consideration by the Board. Wark pf. supp. at 1-2.
3. The Project will promote the orderly development of the region in that it either is consistent with the local and regional plans or deploys natural gas service in town centers, thus avoiding promotion of sprawl. Wark pf. at 8; Raphael pf. at 8-9.
4. Vermont Gas and the Addison County Regional Planning Commission (ACRPC) entered into a Memorandum of Understanding (ACRPC MOU), which resolves nearly all of the issues between them. Bouton pf. supp. at 2.
5. Four of the fifteen conditions contained in the ACRPC MOU focus on services which Vermont Gas has agreed to supply that ACRPC and Vermont Gas agree support the orderly development of the region. Bouton pf. supp. at 3.
6. With the inclusion in the CPG of the conditions set forth in the ACRPC MOU, ACRPC agrees that the construction of the Project promotes the general good of the state and that it will not unduly interfere with the orderly development of the region. *See* Exh. ACRPC Supp. TB-1 at 5.

7. The energy goals and land use plans for each of the eleven towns affected by the Project, as well as the plans for the two regional planning commissions, were reviewed and summarized by Department witness Raphael. *See* Exh. DPS-DR-1 at 11-14; Wark pf. at 8-26.
8. Of the towns along the corridor whose town plans specifically reference natural gas transmission lines, they usually want lines to be placed in existing right-of –way and/or placed underground where feasible. *See* Exh. DPS-DR-1 at 11.
9. Co-location is desirable as it tends to minimize impacts overall and it is the preferred approach when considering aesthetics and land use impacts as it eliminates the need for acquiring and developing new utility corridors. Raphael pf. at 7. *See also* Tr. 9/18/13 at 139 (Raphael).
10. The Project is primarily located within three different types of rights of way, with approximately 27.2 miles within an existing VELCO ROW. *See* Exh. DPS-DR-1 at 1.
11. After ensuring that VELCO's interests are protected, VELCO believes that it makes sense to accommodate this Project in its rights of way. Lind pf. at 2.
12. VELCO believes that such accommodation is generally consistent with the public policy of using existing utility rights of way versus developing new ones. *Id.* at 2-3.
13. The VELCO right of way is an electric transmission corridor that has additional space, not presently being used, but which can accommodate a second line. *See* Tr. 9/20/13 at 166 (Dunn).

Discussion

Pursuant to Section 248(b)(1), the Board must find that the Project will not unduly interfere with the orderly development of the region with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of the municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality. Additionally, as the Project is a natural gas transmission line subject to board review, the Board must find that the line is in conformance with any applicable provisions concerning such lines contained in the duly adopted regional plan.

Most of the Project is underground aside from the gate stations and mainline valves, and a large percent of the Project is sited within existing, public use rights of way. As the Board has recognized in the past, utilization of existing public use corridors to site new transmission facilities can minimize local impacts. *See Re Vermont Transco, LLC*, Docket No. 7295, Order of 10/13/08, at 13 (finding that co-location of an electric transmission line along an existing railway corridor is consistent with orderly development). Specifically, the Board determined that co-location of new facilities on existing rights of way avoids opening a completely new right of way. *Id.* at 15. The Department continues to believe that co-location is, in principle, a desirable way to site new transmission facilities (both gas and electric) for the reasons explained by the Board. However, as the Board has also recognized, when requiring a utility to co-locate a new facility in an existing corridor, the above-referenced advantages of co-location must be weighed against the incremental burden on the existing corridor. *See Petition of Green Mountain Power Corp.*, Docket No. 7349, Order of 6/10/08, at 3, 8-9, 12 (requiring portions of a proposed relocated distribution line to be co-located on nearby existing transmission line structures). Accordingly, any determination not to collocate should be fully justified and supported and any resulting impacts should be minimized to the extent possible and appropriately mitigated.

In this case, there has been an intensive focus on one portion of the proposed Project route that deviates from the existing VELCO right-of-way in the vicinity of Rotax Road and instead traverses the Palmer property. It was also apparent from the technical hearing that conversations remained ongoing between certain parties about possible alternative routes—primarily, alternatives that run in or adjacent to the existing VELCO right-of-way. Nevertheless, the only route explicitly in the record at present is the one proposed by Vermont Gas on February 28. Evaluating this route against the requirements of 248(b)(1), the Department believes that this route is not inconsistent with the orderly development of the region. This is not to say that a revised route within the VELCO right-of-way would be inconsistent with 248(b)(1). Quite the contrary, given the benefits of co-location identified by the Board in previous cases, as well as the ample evidence presented in this case, the Department believes that a route through the VELCO corridor could also be found consistent with the orderly development of the region. However, while the record is replete with possible alternative routes in and around the VELCO

corridor, there was no proposal precisely detailing what Vermont Gas and others believe to be the *best* alternative route that runs through the VELCO corridor.

Accordingly, the Department recommends that the Board require Vermont Gas, after consultation with relevant parties and any new adjoining landowners, to file a detailed map setting forth a proposed route that stays generally within or adjacent to the VELCO corridor in the Rotax Road region. Vermont Gas should file supporting testimony that compares its February 28th proposal with the alternative route through the VELCO corridor and evaluates the advantages of co-locating in the VELCO corridor against the incremental burdens on and adjacent to the corridor. Parties should thereafter be permitted to comment on this proposed route. Importantly, the Department does not believe that this supplemental filing should stay the Board's consideration of whether to grant this Project a CPG. It is the Department's belief that this Project is consistent with the orderly development of the region. However, given the intense scrutiny placed on this particular portion of the Project and the absence of a formalized alternative route through the VELCO corridor, the Department believes that an expedited post-CPG review of concrete alternatives would best serve the public interest. *See In re Vermont Elec. Power Co., Inc.*, 2006 VT 69, ¶ 21, 179 Vt. 370 (2006) ("[W]e have long upheld the Board's authority to approve a general route for a proposed transmission line in a § 248 proceeding, reserving the resolution of difficult aesthetic and environmental considerations underlying the more specific decision to a post-certification procedure.").

Section 248(b)(2) – Need for Present and Future Demand for Service

Proposed Findings

1. In Vermont, about 64 percent of homes heat with oil or propane; only 15 percent are heated with natural gas. By comparison, nationally, only 12 percent of homes use oil or propane while about 50 percent of homes use natural gas for heating. Gilbert pf. at 6.
2. Given its limited availability in Vermont, natural gas is currently underutilized as a heating source. Kumar pf. at 8.
3. Energy conservation, load management, and energy efficiency measures alone would

likely not provide the advantages that would be realized through the expanded natural gas usage that would result from the Project. Kumar pf. at 9.

4. The Project is the most cost effective means to service the Addison County market in light of the increased competition that the Project will engender, the greater efficiency of natural gas as compared to other fossil fuels, and the expanded access to existing efficiency programs. Kumar pf. at 10.
5. Natural gas burns more efficiently than other fossil fuels, resulting in lower quantities of the fuel to produce an equivalent amount of energy needed for heating, cooking, drying, etc., than is the case with other fossil fuels. Kumar pf. at 10.
6. Significant quantities of natural gas exist to assure a price advantage for natural gas over other fossil fuels for a long time. Kumar pf. 11-12.
7. The expansion of natural gas services to customers in Middlebury and Vergennes would increase the availability of energy efficiency programs, even in the absence of additional funding from the General Assembly. These additional efficiency programs would lead to an increase in the number of homes in which the energy fitness is improved, and where fuel bills are reduced. Poor pf. at 7.
8. The Project provides a market for renewable bio-methane. While the known resources are only estimated to be 1 percent of Vermont Gas's sales, the Project can foster more of these opportunities, both geographically and with respect to increased market demand, thereby reducing the amount of fossil fuels used in the state. Poor pf. at 8.
9. The need for the Project is based on the market demand for natural gas service in Addison County, Vermont. Teixeira pf. at 4.
10. Because of Vermont's rural character, Vermont Gas requires a "transmission spine" to serve anything outside of its existing footprint. Tr. 9/16/13, at 169 (Simollardes).
11. The Project was designed based on a consideration of the new load that would be served by the Project in Addison County as well as the potential load that would be served in the Rutland area, given that Vermont Gas's long range plan is to extend service to Rutland. Teixeira pf. at 4.
12. In modeling anticipated loads, Vermont Gas utilized a design day demand that represents

the peak load for firm customers on an 86 degree-day basis. Teixeira pf. at 4-5.

13. Vermont Gas evaluates peak customer demand from two different perspectives: peak-day load and peak-hour load. Since interruptible customers are normally curtailed during the peak day and peak hour, only firm customer load is considered for peak-day and peak-hour purposes. Teixeira pf. at 5.
14. Vermont Gas forecasts that peak day demand will grow from 65,367 Mcf in FY 2013 to 68,262 Mcf in FY 2017. Teixeira pf. at 8.
15. The Addison County demand could not be served more cost effectively through demand side management because there is not natural gas infrastructure there today, and a complete network needs to be installed to serve the new emergent gas load of these communities. Teixeira pf. at 8.
16. Vermont Gas designed the Project to have adequate capacity to meet projected system peak day demand. Vermont Gas projects a system capacity excess throughout FYs 2013-2017. Teixeira pf. at 10.

Discussion

Section 248(b)(2) requires the Board to evaluate whether a project "is required to meet the need for present and future demand for service which could not otherwise be provided in a more cost effective manner through energy conservation programs and measures and energy-efficiency and load management measures." Evaluating this criterion in a recent gas transmission case, the Board focused on whether a proposed project would provide sufficient capacity to meet currently estimated growth within Vermont Gas's existing service territory for the next five years. *Petition of Vermont Gas Systems, Inc.*, Docket No. 7929, Order of 5/13/13, at 6-8. Section 248(b)(2) further requires that "[i]n determining whether this criterion is met, the board shall assess the environmental and economic costs of the purchase, investment, or construction in the manner set out under subdivision 218c(a)(1) (least cost integrated plan) of this title."

When evaluating the "need" criterion in this case, the Board should recognize the important distinction between this "expansion" project—in which a regulated utility seeks to expand its service territory to serve a new market—and other "reliability" projects—in which a

regulated utility seeks to improve its existing service territory to ensure it can adequately serve the present and future needs of an existing market. Accordingly, the Department recommends that the Board tailor its "need" analysis to reflect the fundamental difference between this project and projects such as the reliability upgrade at issue in Docket No. 7929. In the Department's view, the analysis required for this expansion project falls in the spectrum between the Board's traditional analysis of reliability upgrades (e.g., Docket No. 7929) and its analysis of merchant renewable electric plants. *See, e.g., Petition of Georgia Mountain*, Docket No. 7508, Order of 6/11/10, at 20-21. In the former, the Board must ensure that the utility reasonably projected its anticipated load growth and investigated all reasonable alternatives to the proposed solution. *Vermont Gas*, Docket No. 7929 at 6-8. In the latter, the Board relied on the fact that the generator would contribute to both Vermont's and the region's need for power generally and renewable power specifically. *Georgia Mountain*, Docket No. 7508 at 21.

Given that Vermont Gas is a regulated utility with captive ratepayers, a more stringent analysis than the one employed in *Georgia Mountain* is in order. However, as explained by Department witness Poor, an expansion project must be evaluated differently from traditional utility projects built to alleviate a known or expected capacity constraint. Tr. 9/19/13 at 96 (Poor). The reason for the different analysis is clear—Vermont Gas is not under an obligation to expand its system to serve the Addison County market. In contrast, where Vermont Gas is undertaking a reliability upgrade, such as the project at issue in Docket No. 7929, it is performing that upgrade (at least in part) to fulfill its obligation to provide reliable service by alleviating the known or expected capacity constraint. Where this obligation exists, it is reasonable for the Board to evaluate all manner of alleviating the constraint to ensure that the selected one is truly "needed" and is the least cost alternative for the ratepayers who will bear the costs and reap the benefits of the investment. In that situation, the Board may find that efficiency measures (or even a new capacity resource like bio-methane) could more effectively relieve the constraint and order the utility to pursue that option, rather than constructing new pipeline capacity. Because Vermont Gas is under no obligation to serve the Addison County market and is putting its own capital at risk to do so, the analysis should not be as exhaustive as a traditional least-cost analysis because (1) the need is based on a projected new market demand,

and (2) the absence of an initial obligation to build inhibits the Board's ability to order a fundamentally different "alternative" to the proposed Project.

Evaluated against this intermediary level of review, Vermont Gas has met the need criterion in this case because it reasonably estimated the Addison County market, planned the Project for that present market, as well as future markets to be served by subsequent expansions, and did so in a reasonable manner showing that the need could not be eliminated by efficiency measures or demand side management. Moreover, as acknowledged by Vermont Gas witness Simollardes, Vermont Gas has no assurances, nor is it seeking such assurances here, that it will be able to recover some or all of its investment in the Project. Tr. 9/16/13, at 169 (Simollardes).

Vermont Gas witnesses Gilbert and Teixeira describe the "need" for this Project as primarily the market demand for natural gas in Addison County. As described by Mr. Teixeira, Vermont Gas explored a number of ways to serve this market, including the use of different size pipelines at either the transmission or distribution level. Tr. 9/17/13 at 230-32 (Teixeira). Ultimately, Vermont Gas decided to use the proposed 12-inch transmission pipeline to meet not just the present market to be served by this Project, but also the future market to be served by reasonably anticipated and planned expansions—first to International Paper in its Phase II project, and then to the Rutland area in the longer term. *Id.* While other, smaller pipelines could have been used to serve the Phase I market, the use of the 12-inch pipeline was chosen so as to reduce the need for future looping that would otherwise be necessary to serve future load in the Rutland area. *Id.*

The present and future load to be served by this Project cannot realistically be met by the prospect that some amount of efficiency or demand-side management measures could or would be put in place that would reduce the demand for natural gas at a level commensurate with the added capacity provided by the Project. No testimony was offered in this case that would suggest that any entity could or would be willing to provide a level of energy efficiency measures to Addison County at a quantity or pace that would be sufficient to offset the amount of natural gas that the Project would deliver to the Addison County market. Nor is it realistic to presume that Vermont Gas (and its existing ratepayers) should fund efficiency measures for residents of Addison County who are not Vermont Gas customers. Therefore, while it is not

reasonable to hold out efficiency services as a reasonable alternative to the Project, it is also noteworthy that a significant benefit associated with this Project is that by extending Vermont Gas's service territory into the Addison County market, it will bring with it Vermont Gas's obligation to provide energy efficiency services to Addison County customers.

In considering whether this criterion is met, the Department has considered the environmental and economic costs of the Project. These costs (and benefits) are discussed more fully in the economic benefit (section 248(b)(4)) analysis. With respect to the environmental benefits particularly, adjustments to the Project memorialized in the Memorandum of Understanding (MOU) reached between Vermont Gas and the Agency of Natural Resources (ANR) are intended to mitigate the impact of the Project, such that the Project will not have an undue adverse impact to the natural environment. Exh. Petitioner-ANR-Joint-1, as corrected, at 2 (MOU between Vermont Gas and ANR). Moreover, as discussed more extensively below, the best estimate of the Project's lifecycle greenhouse gas emissions (not including the increased level of efficiency services resulting from Vermont Gas's provision of these services to a new and underserved market) is that the Project will result in a net reduction of greenhouse gases over both a 20- and 100-year time horizon. Stanton pf. sur. at 4.

Nevertheless in the event the Board does not agree with the standard of review discussed above, the Department provided an analysis that evaluated the costs and benefits associated with a number of different scenarios. This analysis showed the Project to be more cost effective than other potential options (specifically, a scenario in which the Project is not built and Addison County industrial customers are served by compressed natural gas and another scenario where these customers are served by liquefied natural gas). Poor pf. reb. at 10-11. One scenario—in which the Project is constructed and aggressive efficiency programs are implemented—did demonstrate a greater benefit that the benefit to be realized from the Project alone. In effect, this "Project plus efficiency" scenario is what is under consideration here, as the expansion to Addison County will open that region to Vermont Gas's provision of efficiency services. Simollardes pf. at 10; Tr. 9/19/13 at 127 (Poor).

The Department recommends that the Board not impose a CPG condition in this proceeding related to efficiency measures. Given that Vermont Gas's obligations as an energy

efficiency utility are under investigation in another pending docket—Docket No. 7676—the manner and extent of the efficiency services Vermont Gas should provide in Addison County are best addressed there, in the context of studying the efficiency potential and setting efficiency budgets. Tr. 9/19/13 at 111-15 (Poor). It is sufficient to recognize here that because the Project will result in Vermont Gas providing efficiency services to Addison County homes and businesses, it is reasonable to acknowledge the concomitant benefits in this proceeding, even if they cannot be precisely quantified at this time.

Finally, as discussed in response to section 248(a)(3) below, the Project is also consistent with the 2011 Comprehensive Energy Plan, which expressly encourages the expansion of natural gas infrastructure to, among other things, expand natural gas service to more Vermonters. 2011 CEP, vol. 2, at 222. Accordingly, the need for the Project is sufficiently demonstrated by the findings and discussion set forth above.

Section 248(b)(3) – System Stability and Reliability

Proposed Findings

1. The Project provides benefits to existing Vermont Gas customers by increasing the reliability of the existing system. These reliability benefits are achieved through looping the system through Williston to south of Burlington, and by the construction of a gate station in Williston, which will provide the capability to backfeed Burlington. Tr. 9/17/13 at 229 (Teixeira); Teixeira pf. at 11.
2. The Project may eventually allow for another source of natural gas from the United States. This would significantly improve gas supply reliability since Vermont Gas would be able to source natural gas from two locations and thus the loss of one supply would not jeopardize the entire system. Berger pf. at 12-13.
3. The Project is sized in such a way to provide substantial excess capacity to serve the projected Addison County load, and it will not have an adverse impact on stability and reliability with respect to service to other customers. Kumar pf. at 13-14.
4. The Project will be designed and operated in accordance with the recommendations,

codes, and standards set forth in the Rebuttal Testimony of Department witness Berger. Berger pf. reb. at 1-14; Tr. 9/17/13 at 227-28 (Teixeira).

Discussion

The Project will be designed, built, and operated in such a way that it will have sufficient capacity to serve existing and anticipated demand. It will provide reliability benefits to existing customers through the looping of the Burlington region and the enhanced ability to backfeed the Burlington area from the new Williston gate station. It increases the likelihood that in the future, Vermont Gas will be able to interconnect with the United States pipeline system, thereby establishing an access point to a new supply. Finally, the Project will be designed, built, and operated to a high degree of safety and robustness. Accordingly we find that the Project will not have an adverse impact on system stability and reliability.

Section 248(b)(4) – Economic Benefit to the State

Proposed Findings

1. Vermont Gas initially calculated the Project's economic benefits as follows:
    a. Net energy bill savings of $112.5 million;
    b. Carbon reduction savings of $17.1 million;
    c. Property tax payments of $23.5 million. Simollardes pf. at 3.
2. Current estimates of the Project cost are $86.6 million for the transmission mainline and the distribution mainlines to Vergennes and Middlebury, and an additional $6.3 million for the distribution networks inside those communities (exclusive of the cost of services and meters). Tr. 9/16/13, at 167-68 (Simollardes).
3. The Project provides significant net benefits in terms Vermont GDP. Nagle pf. reb. at 6.
4. The following table sets forth the net present value of the costs and benefits of the Project and three alternatives on Vermont GDP through 2031 (exclusive of greenhouse gas impacts). The alternatives are the Project as proposed, the Project plus a scenario where an aggressive efficiency program is imposed, no Project and service to industrial customers using LNG, and no Project with service to industrial customers using CNG.

Nagle pf. reb. at 3-5.

Net Economic Impact of the Project

	GDP (NPV millions $2012)		
Discount Rate	3.00%	7.69%	9.75%
VGS baseline	$89.79	$60.35	$52.09
VGS+Efficiency	$140.57	$86.96	$72.40
Industrial LNG	$82.26	$47.76	$38.37
Industrial CNG	$80.79	$47.21	$38.04

5. This table sets forth the economic impact of the Project before greenhouse gas emissions are quantified and monetized. Poor pf. reb. at 12.
6. This table also sets forth the economic impact without any assumptions concerning the sale of natural gas to International Paper (i.e., the anticipated Phase II project). Tr. 9/19/13, at 119 (Poor).
7. The following economic benefits associated with the Project (which presume the completion of Phase II and service to International Paper) comprise both direct and indirect benefits. Carr pf. at 6-12.
    a. Direct benefits include construction and conversion capital expenditures of households and businesses, and the availability of natural gas in Addison County. Carr pf. at 8. Vermont Gas estimates that over the 20-year period from 2011-2031, Addison County customers will reduce their collective energy bills by a total present value of $210 million (2012 dollars using a discount rate of 3 percent). Those customers will incur approximately $19 million in conversion costs for an overall direct benefit of approximately $191 million. Carr pf. at 8.
    b. Indirect benefits include the increased number of jobs and income resulting from the construction of the more than $90 million pipeline. Carr pf. at 9-12.
    c. The Project should result in Addison County households having somewhat more

disposable income (as a result of the cheaper fuel source) whereas Chittenden and Franklin County households will have slightly less (as a result of their system expansion fund contributions). Carr pf. at 10-11.

d. Some negative impacts will be felt by competitors in the form of lost sales for other heating fuels such as fuel oil and propane. Carr pf. at 11.

e. Businesses (both existing and prospective) in Addison County should stand to gain significantly by having a new, lower cost, cleaner burning fuel source available to them. On average, Vermont Gas projects that during the 20-year period ending 2031, the Project will indirectly result in more than 20 jobs added to the state economy, increased annual economic output of between $2.1 million and $14.1 million, and increased annual personal disposable income of between $1.1 million and $4.0 million after conversion have been completed. Carr pf. at 12.

8. In the event that the Project is built but Phase II is not, Vermont Gas projects a 2.6 to 4.5 percent rate increase for existing Vermont Gas customers, but nonetheless still results in a positive economic benefit to Vermont. Carr pf. at 12-13.

Discussion

Before issuing a CPG, the Board is required to find that the proposal will result in an economic benefit to the state and its residents. 30 V.S.A. § 248(b)(4). The Project as proposed, and as modified by Vermont Gas through voluntary commitments or pursuant to various MOUs, will result in an economic benefit to the state and its residents. This economic benefit will result whether or not Vermont Gas constructs the anticipated Phase II project to International Paper.

The Department's analysis, which focused solely on the Project and did not include Phase II, identified economic benefits that are somewhat lower than those projected by Vermont Gas. Even using the highest discount rate discussed in this case of 9.75 percent, the Department's analysis shows that the Project will result in more than $50 million of economic benefits over 20 years. This benefit exists without taking the Project's reasonably forecasted greenhouse gas reductions into consideration. While estimating the Project's impact on greenhouse gas

emissions involves significant uncertainty (discussed below), the best estimate provided in this case shows a net greenhouse gas reduction from this Project, which has the effect of further increasing the economic benefit. The benefit also exists without taking into account the impact of the Project's reasonably forecasted energy efficiency programs.

This net economic benefit is corroborated by the Department's outside expert Mr. Kumar, who independently reviewed the Project's economic benefits net of construction costs and net of any withdrawals from the System Expansion and Reliability Fund. The Department's expert used different discount rates in his analysis (the highest one being 9.75 percent) and also calculated the Project impact with and without Phase II and service to International Paper. All of the scenarios evaluated by Mr. Kumar show a net economic benefit resulting from the Project. Kumar pf. at 17.

Challenges to the economic benefit resulting from the Project fall generally into the following categories: (1) that there is not sufficient evidence to demonstrate that the Project will result in an economic benefit; (2) that Vermont Gas's projections of natural gas prices presumes too low a price; and (3) that greenhouse gas impacts could result in economic costs (rather than benefits) associated with the Project.

The first challenge is without merit. Not only has Vermont Gas demonstrated that the Project will result in an economic benefit, the Department has also reviewed the Project and independently corroborated this conclusion as discussed by Mr. Kumar. Moreover, the Department conducted its own economic analysis as described in the pre-filed testimony of George Nagle to further test Vermont Gas's assumptions, and again found that the Project will result in an economic benefit. Palmer witness Mr. Wolfe critiques the adequacy of Vermont Gas's study and suggests that Vermont Gas should be required to perform additional modeling that studies, among other things, renewable electric resources as an alternative to the Project. Wolfe pf. at 7-8. Such an argument is misplaced. Even assuming that another scenario involving construction of renewable resources were shown to provide a greater benefit to the state and its residents, section 248(b)(2) asks only whether the Project proposed results in an economic benefit, not whether it results in the highest possible economic benefit. To require such a stringent showing would be to forever pit the perfect against the good, with the likely

result that few, if any, projects would ever meet this unduly high test. Moreover, as explained by Department witness Poor, it is not clear that Vermont Gas would have the resources or capacity to invest in renewables. Tr. 9/19/13 at 130 (Poor).

The second challenge, i.e., that Vermont Gas is projecting natural gas prices that are too low, is best captured by the Vermont Fuel Dealers Association (Fuel Dealers) witness Guilford, who expressed "grave reservations" about Vermont Gas's fuel price projections in light of historical fluctuations in energy prices and other drivers such as rig counts and increased domestic and international demand for natural gas. Guilford pf. at 7-12, 15-16. This challenge too is without merit. As described by Vermont Gas witness Carr at the technical hearing, the basis for Vermont Gas's price projections is the United States Energy Information Agency's forecasts. Tr. 9/17/13 at 214 (Carr). These projections are considered to be transparent and credible, and they account for myriad supply and demand side considerations both domestically and internationally. Tr. 9/17/13 at 215-17 (Carr). The Department's economic forecasts also were based on EIA data, utilizing the 2013 Annual Economic Outlook as the source of its analysis (which updated Vermont Gas's earlier use of 2012 EIA data). Nagle pf. reb. at 3. Given that EIA's price forecasts are informed by an extremely wide range of information, the Board should not second guess those projections and adjust them simply because one party may feel, without demonstrating, that EIA improperly weighted one factor more than others.

The third challenge that greenhouse gas impacts could result in economic costs (rather than benefits) associated with the Project is advanced by CLF. However, as discussed below, CLF witness Stanton corrected her initial over-estimate of the greenhouse gas emissions that should be attributed to the Project. While the testimony of witnesses Poor, Nagle, Bluestein, and Stanton (and the iterative process described therein) demonstrate that a net greenhouse gas reduction is the most likely scenario, the Department acknowledges the uncertainty inherent in this conclusion. However, the Department would emphasize that the economic benefit of the Project remains significant, even when the projected greenhouse gas reductions are not included in the analysis. Moreover, contrary to the testimony of CLF witness Stanton, nothing about this project "locks in" the state to use this project for 50 to 100 years. Stanton pf. sur. at 6. To the extent natural gas becomes too expensive (either on its own or through the addition of some sort

of carbon tax or other fee), no one is required to take service from Vermont Gas. Quite the contrary, this Project represents an additional fuel choice to Vermonters, to take or not take if and when the economic and environmental costs become too dear.

Accordingly, because the evidence overwhelmingly supports a finding that this criterion is met, we need not determine the precise extent of the benefit, nor the precise ways in which the benefit should be measured (e.g., the proper discount rate) because doing so would not change the outcome that the project meets this requirement.

Finally, the Department is keenly aware that the analysis conducted by witnesses Poor and Nagle points to a markedly greater benefit when the Project is combined with an aggressive energy efficiency program and is sensitive to CLF's advocacy for greater efficiency requirements. However, as described above, the Department does not believe that additional efficiency requirements are warranted in this proceeding. Efficiency requirements for Vermont Gas will be addressed in a different proceeding, Docket No. 7676, which will study energy efficiency potential, as well as rate impacts and other factors, to determine what efficiency opportunities exist and to set budgets and plans to take advantage of those opportunities. Tr. 9/19/13 at 114-15 (Poor). Thus, a venue presently exists in which to fully examine these issues, and to do so in a setting that balances the need for greater efficiency with the effect on Vermont Gas ratepayers. Moreover, as Department witness Poor explained, because conditions imposed here, in the absence of information about efficiency opportunities, costs, and rate impacts, could actually create barriers to the efficient use of potentially scarce efficiency dollars, these issues are better addressed in Docket No. 7676. Tr. 9/19/13 at 111-13 (Poor). That said, the Department continues to expect Vermont Gas to move quickly to begin serving the Addison County market under its existing efficiency program as it expands into that territory.

Section 248(b)(5) – Aesthetics

Proposed Findings

1. The Project, with appropriate mitigation measures in place, will not have an undue adverse effect on aesthetics or on the scenic or natural beauty of the area. Buscher pf. at 6. Raphael pf. at 5.
2. The Project is primarily located within three different types of rights of way (ROW): (1) approximately 8.2 miles within the Chittenden County Circumferential Highway ROW; (2) approximately 27.2 miles within an existing VELCO ROW; and (3) approximately 5.2 miles within existing town ROW. *See* Exh. DPS-DR-1 at 1.
3. Co-location of the pipeline in existing ROWs is desirable as it tends to minimize impacts overall and it is the preferred approach when considering aesthetics and land use impacts as it eliminates the need for acquiring and developing new utility corridors. Raphael pf. at 7.
4. The Project is, for the most part, an underground pipeline which generally will not be visible. *See* Exh. DPS-DR-1 at 1, 7; Buscher pf. at 4.
5. The Project does include some above-ground components that will be visible. These are the Colchester tie-in, three gate stations located in Williston, New Haven and Middlebury, and six mainline valve locations. *See* Exh. DPS-DR-1 at 1; Buscher pf. at 4.
6. There will be areas along the route that will require the removal of existing vegetation. In some instances, this clearing will expose views previously screened by existing vegetation and plantings put in place expressly to provide screening. Raphael pf. at 5. *See also* Exh. DPS-DR at 3.
7. In conducting an aesthetics analysis of the Project, Department witness Raphael concluded that the proposed New Haven gate station, as well as several other locations where either the mainline valves will be located or where the underground routing for the pipeline will require the removal of extensive existing vegetation, have the potential for an adverse impact if the Project is constructed. Raphael pf. at 5.

8. With respect to the New Haven gate station, the primary concern is that the proposed site is currently an active agricultural area and construction of a gate station will compromise both the function and use of the area, as well as its visual qualities. *See* Exh. DPS-DR-1 at 8.
9. Construction of the New Haven gate station will introduce the issues of sound, lighting and selection of construction materials. *Id.* at 8-10.
10. With respect to vegetative clearing along the Project route, numerous locations have been identified that have the potential to suffer adverse impacts. Raphael pf. at 9.
11. It is often difficult to anticipate the extent of vegetative loss that will occur and therefore difficult to predict or plan for replacement in advance. *See* Tr. 9/18/13 at 140 (Raphael).
12. An appropriate method for dealing with this uncertainty regarding the loss of vegetation is to impose the condition of a post-construction review process, with the Board as the arbiter of any disputes. *Id.* at 140-141.
13. The New Haven gate station will blend more effectively into the existing background if the ground is covered with gray gravel, as opposed to the proposed white color, and the siding of the building should be a shade of gray or some other earth tone, as opposed to white or a lighter color. Exh. DPS-DR-1 at 8-10; Buscher pf. supp. & reb. at 3.
14. The New Haven gate station should be equipped with light fixtures that provide shielded down lighting and that are motion-sensor activated. In the event the motion-sensor activated lights are a concern for the community, adjoining landowners or the town, human-activated lights are an acceptable alternative. Exh. DPS-DR-1 at 9; Tr. 9/18/13 at 138 (Raphael).
15. There will be sound associated with the gate station sites in New Haven, Middlebury and Williston, and concerns have been raise—most notably in New Haven—with regard to the potential impact of that sound on the surrounding areas. Noise monitoring should be conducted at the sites to ensure that the noise levels do not exceed 55 dB in the daytime or 45 dB at night, as measured at the closest occupied structure. Exh. DPS-DR-1 at 8, 10; Heintz pf. supp. at 39; Tr. 9/18/13 at 142-44 (Raphael).

Discussion

When evaluating the aesthetic impacts of projects reviewed under § 248, the Board employs the "*Quechee* analysis" formulated by the Vermont Environmental Board. Docket No. 6860, Order of 1/28/05 at 79. The *Quechee* analysis first requires an assessment of whether the proposed project, if constructed, will have adverse impacts on aesthetics and scenic or natural beauty, using specific factors to guide the evaluation. If there are adverse impacts, the Board must consider whether such impacts are "undue." The following factors inform this inquiry:

1. Does the project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?
2. Have the applicants failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the project with its surroundings?
3. Does the project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area?

Finally, before reaching a conclusion as to whether any adverse impacts are undue, the Board considers the "overall societal benefits of the project." Docket 6860, Order of 1/28/05 at 79-80 (footnote omitted).

Utilizing the *Quechee* analysis and relying on Board precedent, Department witness Raphael reviewed the aesthetic impacts of the Project. Mr. Raphael identified locations where construction of the Project will, or has the potential to, result in adverse impacts, most notably the proposed New Haven gate station and several other locations where the underground routing would require the removal of extensive existing vegetation. With respect to the latter impacts, following extensive consultation with Vermont Gas regarding mitigation principles in general, Mr. Raphael proposed a post-construction mitigation review of the entire route when the actual impacts of the vegetation removal are known. Vermont Gas agreed to this and the Department recommends that, with this mitigation strategy in place—in which the Board would be the final arbiter of any disputes—the Board find that any adverse impacts resulting from vegetation removal and clearing will not be undue.

With respect to the New Haven gate station, in addition to post-construction review on the landscaping issues, Mr. Raphael made specific recommendations on the selection of construction materials and on the issue of the lighting fixtures that will be installed at this site. Mr. Raphael suggested, and Vermont Gas agreed to, the use of gravel and building siding in shades of gray or another earth tone, as opposed to the initially proposed white/lighter colored materials. Additionally, Mr. Raphael proposed the use of motion-sensor activated lights, which provide shielded-down lighting at the site. Vermont Gas agreed to this, but proposed the alternative of human-activated lighting in the event the motion activated lights became a concern for the community, adjacent landowners or the town. Mr. Raphael confirmed that this would be an acceptable alternative.

Lastly, Mr. Raphael suggested noise monitoring at each of the gate station sites to ensure that the noise levels do not exceed 55 dB in the daytime or 45 dB at night as measured at the closes occupied structure. The Board should conclude that the Project will not have undue adverse aesthetic impacts, if those impacts are mitigated in accordance with the Department's recommendations presented herein.

Section 248(b)(5) – Public Health and Safety

Proposed Findings

1. The Project has been designed and will be constructed and operated to meet or exceed all applicable state and federal codes and standards, including Part 192 of Title 49 of the Code of Federal Regulations (the safety standards of the Office of Pipeline Safety at the U.S. Department of Transportation), the B31.8 Code of the American Society of Mechanical Engineers (governing the design of gas transmission and distribution piping systems), and PSB Rule 6.100 (pipeline safety). Teixeira pf. 12-13.
2. Department witness Berger set forth and provided the basis for additional safety measures proposed by the Department, all of which have been accepted and agreed to by Vermont Gas. Berger pf. reb. 2-13. *See also* Tr. 9/17/13 at 62, 226-228 (Heintz); Tr. 9/17/13 at 227-28 (Teixeira).

3. These measures include, but are not limited to, the following:
    a. Vermont Gas should design and operate the pipeline as a pipeline located in a Class 3 area for its entire length.
    b. Vermont Gas should utilize the proposed changes in the August 25, 2011 ANPRM or the criteria in the Alternative MAOP regulations in 49 CFR § 192.112 for the sourcing and testing of the material being used during the construction of the pipeline.
    c. During the construction phase of the pipeline, Vermont Gas should only use highly qualified workers and inspectors and perform additional quality control inspections as specified in the reference ANPRM and 49 CFR § 192.328.
    d. In addition to the initial geometric and metal loss ILI testing of the pipeline with retests every 7 years thereafter, which Vermont Gas has already agreed to perform, an additional test of the metal loss tool should be performed approximately 1 year after the start of operations to determine if there has been metal loss due to interference currents in the HVAC.
    e. Vermont Gas should implement additional testing as specified in 49 CFR § 192.620(d) and the ANPRM for corrosion control, interference currents, and other issues which could affect the integrity of the pipeline and thus increase the risk of an incident. Berger pf. reb. 2-13; Tr. 9/17/13 at 227-28 (Teixeira).

Discussion

The evidence in this proceeding demonstrates that public health and safety will not be adversely affected by the design, construction and operation of the Project. Vermont Gas has designed and will construct and operate the Project in a manner which meets or exceeds all applicable state and federal codes and standards. Furthermore, the expert consultant retained by the Department has thoroughly reviewed the Project as proposed by Vermont Gas and has significantly heightened and increased the design, construction , operation, maintenance and testing standards which will apply. The Board should conclude that the Project will not have an adverse effect on public health and safety.

Section 248(b)(5) – Greenhouse Gas Impacts

Proposed Findings

1. In its petition, Vermont Gas initially projected that the Project would reduce greenhouse gases in Vermont by approximately 296,000 tons over a 20-year period, with an associated cost of $17.1 million. Simollardes pf. at 3-5.
2. Vermont Gas's initial projection of greenhouse gas emissions was a "burner tip" analysis that relied on a number of assumptions, among them the type and amount of fuel utilized prior to switching to natural gas, the rate of conversions, and the efficiency of current and newly installed equipment. Poor pf. at 9.
3. While changing these assumptions would lead to different burner tip emissions savings, factors such as the lower carbon content of natural gas and the higher efficiency of gas appliances would likely not change the result that "burner tip" greenhouse gas emissions savings would remain positive. Poor pf. at 10.
4. CLF provided an analysis from Dr. Stanton that compared lifecycle natural gas emission attributable to the Project to emissions from fuel oil and propane it is projected to displace only at the burner tip. Poor pf. reb. at 4-5.
5. CLF's analysis used an upstream methane leak rate of 3 percent, which represents the average of conventional and unconventional leakage estimates in the four studies reviewed in Exhibit CLF-EAS-6, World Resources Institute, *Clearing the Air: Reducing Upstream Greenhouse Gas Emissions from U.S. Natural Gas Systems*, Washington, DC (2013) (WRI Report). Stanton pf. at 12-13.
6. CLF's initial analysis showed net greenhouse gas increases as a result of the Project, both with and without Phase II service to International Paper. Stanton pf. at 18-19.
7. Vermont Gas provided an analysis from Mr. Bluestein comparing the lifecycle emissions of fuel oil and biofuel to natural gas. Poor pf. reb. at 5.
8. Vermont Gas's study demonstrated the overall lifecycle greenhouse gas emissions for gas delivered by Vermont Gas is 18 percent lower than oil at the point of delivery and 13 percent lower than 7 percent biofuel. This emissions savings increase when including the

higher efficiency for gas equipment. Bluestein pf. reb. at 8.

9. Neither one of these studies represents a full lifecycle greenhouse gas analysis of the Project. Poor pf. reb. at 2.
10. Department witness Poor conducted a revised analysis using elements of both CLF's and Vermont Gas's studies. The Department's analysis is structured based on Stanton's study but corrects that study to use the correct density value of methane.[1] The Department's study also includes upstream emissions from fuel oil as estimated by Mr. Bluestein. Poor pf. reb. at 6-7.
11. The results of the Department's analysis (after being corrected for a calculation error) show the following greenhouse gas impacts associated with the Project:

Emissions Impacts of the Project

Case	20 year cumulative Impact (tons/CO2e)	100 Year Cumulative Impact (tons/CO2e)
Adjusted Density only	(38,281)	(176,616)
Adjusted Density + VGS estimate upstream fuel oil	(220,439)	(1,138,851)

Stanton pf. sur. at 4.

12. This analysis, which shows a net greenhouse gas reduction in all cases, provides a range of emissions impacts that may result from the Project. Poor pf. reb. at 8.
13. The first row corrects Stanton's study only to use the appropriate methane density. It does not correct her study to include an upstream greenhouse gas impacts from fuel oil or propane. Therefore, the first row is on the high side of the range of greenhouse gas estimates. Poor pf. reb. at 8.
14. The second row includes the upstream emissions from fuel oil (but not propane), and is therefore a better estimate of greenhouse gas emissions from the Project.
15. Even after this analysis, it is uncertain whether this Project will reduce greenhouse gases,

[1] In her initial analysis, Dr. Stanton used the incorrect density of methane from 77.5 lbs/MCF. In her surrebuttal testimony, Dr. Stanton acknowledged her error and revised the density to 42.0 lbs/MCF, as recommended by Department witness Poor. Stanton pf. sur. at 2.

depending on numerous variables. Tr. 9/19/13 at 125-26 (Poor).

Discussion

Section 248(b)(5) requires that the Board give due consideration to the greenhouse gas impacts of the Project. While the ultimate greenhouse gas impact of the Project is uncertain, the best evidence provided in this proceeding indicates that the Project will result in a net reduction in greenhouse gases.

Importantly, the record in this case demonstrates an iterative process that developed between witness's Simollardes, Poor, Stanton, and Bluestein. Each added, corrected, and opined on each other's analysis, with the result being a projection of greenhouse gas reductions—220,439 tons CO2e/20 years and 1,138,851 tons CO2e/100 years—that reflects if not consensus, at least a general acceptance as to its reasonableness. This analysis is based on an acceptance of (though not necessarily agreement with) Dr. Stanton's proposed upstream methane leak rate of 3 percent. Stanton pf. at 11. There remains uncertainty regarding the extent of methane leakage in the in the natural gas industry and agree with Dr. Stanton that it would be helpful to have better information on actual upstream emissions. Stanton pf. reb. at 8-9. To that end, a recent University of Texas study (Exh. Pet. Surr. JLB-1) released during the week of the technical hearings did just that, taking direct measurements of various stages of the natural gas lifecycle. This study, while admittedly not definitive in its own right but nonetheless utilizing the methodology advanced by CLF witness Stanton, calculated an upstream methane leakage rate of 0.42 percent. Accordingly, the 3 percent upstream methane leak rate used in the analyses in this case is a reasonable, if not conservative, estimate of methane emissions to attribute to the Project time. Considered in light of the significant burner tip savings of natural gas over fuel oil and propane, the collective analysis of the experts in this case demonstrates that natural gas has a significant advantage over the other fuels it is expected to displace with respect to greenhouse gas emissions.

In her surrebuttal testimony, Dr. Stanton raises the concern that because there is no policy mechanism in place to preclude the expanded use of natural gas beyond present day fossil fuel heating, additional load (such as a new manufacturing facility or electrical gas-fired generator) could someday further increase greenhouse gas emissions. Stanton pf. sur. at 5. The Department does not share this concern because much like Dr. Stanton's initial analysis in this case, it fails to

present an apples-to-apples comparison. Poor pf. reb. at 3 (noting that Dr. Stanton inappropriately modeled the impact of lifecycle greenhouse gas emissions from the Project by comparing them to only a portion of the lifecycle for other fuels). To the extent a new generator or manufacturer takes service from the Project, the greenhouse gas emissions attributable to the Project must be compared with a counter scenario in which the facility is served by some other fuel source. To attribute all emissions of this hypothetical future facility to the Project, without any comparison to the alternatives (e.g. fuel oil), is not sound analysis. Accordingly, the Department has given due consideration to the greenhouse gas impacts of the Project and believes that there is a strong likelihood that the Project will result in net reduction in emissions. Certainly, they are not unduly adverse. Accordingly, the Department recommends that the Board find this criterion to be satisfied.

Section 248(b)(6) – Least-Cost Integrated Resource Plan

Proposed Findings

1. The Project is consistent with the least-cost integrated resource plan (Plan) that Vermont Gas submitted to the Board in November 2012. Simollardes pf. at 10.
2. The Plan models expansion to the Middlebury and Vergennes communities. Poor pf. at 13.
3. The Plan sets forth a decision-making framework that is largely based on Vermont Gas's competitive position relative to alternative consumer choices, noting that if the competitive position remains significant, Vermont Gas will propose to expand to Middlebury and Vergennes. Poor pf. at 13.

Discussion

In order to issue a CPG in this proceeding, section 248(b)(6) requires the Board to determine that the Project "is consistent with the principles for resource selection expressed in [Vermont Gas's] approved least cost integrated plan." Vermont Gas does not have such an approved plan, although its 2012 Plan is pending in Docket No. 7980 and, on April 12, 2013,

Vermont Gas submitted an MOU in that docket, accompanied by a revised version of the 2012 Plan.[2]

In a recent decision addressing a reliability upgrade (Phase IV of Vermont Gas's Looping Project, designed to serve forecasted load) proposed by Vermont Gas in Docket No. 7929, the Board determined that nothing prohibits the Board from granting a CPG to a utility without an approved plan, provided that the Board considers "those environmental effects which the utility must consider in developing a least cost integrated plan." *Petition of Vermont Gas Systems, Inc.*, Docket No. 7929, Order of 5/31/13, at 21 (quoting Public Act No. 259 § 7 (1992 Vt., Adj. Sess.)). As the Board explained, the relevant environmental effects, and the requirements of least-cost planning in general, are described in 30 V.S.A. § 218c(a)(1)—the statute which defines a "least cost integrated plan." *Id.*

As discussed in response to the 248(b)(2) "need" criterion, this Project comports with least-cost-planning principles, tailored of course to the unique circumstances of the expansion (rather than reliability) project here. Moreover, as explained by Department witness Poor, the MOU between the Department and Vermont Gas related to Vermont Gas's pending Plan would require Vermont Gas to analyze LNG and CNG as alternative options to proposed new pipeline construction. Tr. 9/19/13 at 107 (Poor). As discussed above, the Department conducted this comparison (at least with respect to Vermont Gas's industrial customers) and found the Project to provide net benefits over and above those "alternatives."

The Department therefore recommends that the Board find this criterion to have been met.

Section 248(a)(3) – General Good of the State

Proposed Findings

1. The Project will increase the availability of energy efficiency services. Poor pf. at 7.
2. The Project will foster the development of bio-methane resources. Poor pf. at 8.
3. The Project will likely result in a net reduction of greenhouse gas emissions. Poor pf. at 9.

[2] All parties to that docket - i.e., Vermont Gas, DPS, and the Vermont Energy Investment Corporation, in its capacity as the state's energy efficiency utility - are signatories to the MOU in Docket 7980, which requests Board approval of the revised version of the IRP.

4. The Project is consistent with the 2011 CEP's goal of acquiring 90 percent of the state's energy needs from renewable resources by 2050. Poor pf. at 5-6.
5. The Project provides will provide customers with an additional heating fuel choice. Poor pf. at 5-6.
6. For these and other reasons, the Project is consistent with the state's 2011 Comprehensive Energy Plan (2011 CEP). Poor pf. at 11.

Discussion

Section 248(a)(3) requires that the construction of a natural gas facility cannot begin unless the Board first finds that it will promote the general good of the state. As discussed herein, the Project meets the substantive criteria of section 248(b). As discussed below, the Project is consistent with the state's 2011 Comprehensive Energy Plan (2011 CEP), will help realize the goal of expanded natural gas service, and will foster expanded efficiency services and access to bio-methane resources. The Department therefore recommends that the Board find that the Project will promote the general good of the state, subject to the conditions discussed below.

First and foremost, the 2011 CEP—a document reflecting significant stakeholder engagement that expresses the sometimes competing desires of Vermonters (Poor pf. at 3-4)—expressly recommends the following: "Encourage expansion of and upgrades to natural gas infrastructure to enhance system reliability, reduce costs, and expand natural gas service to more Vermonters." 2011 CEP, vol. 2 at 222. The 2011 CEP further states "Vermont should encourage the increased use of natural gas by supporting economically viable expansion of the natural gas service territory, promoting attachments to the current distribution system … and promoting the use of natural gas vehicles." 2011 CEP, vol. 2, p. 220. The 2011 CEP recognizes the advantages and disadvantages of natural gas, as well as the fact that natural gas expansion encourages fuel choice for Vermonters, which should increase competitiveness in the fuels market—applying downward pressure on prices and helping keep service quality high. Poor pf. at 5. The Project at issue here is precisely the type of expansion specifically recommended by the 2011 CEP.

The 2011 CEP also sets a target that Vermont should source 90 percent of its energy needs from renewable sources by 2050. The 2011 CEP seeks "to eliminate Vermont's reliance upon oil by mid-century by moving toward enhanced efficiency measures, greater use of clean, renewable

sources for electricity, heating and transportation, and electric vehicle adoption, while *increasing our use of natural gas and biofuel blends* where nonrenewable fuels remain necessary" 2011 CEP, vol. 1, p. 3 (emphasis added). The CEP continues: "The moves must be deliberate and measured to ensure overall energy costs for our businesses and residents remain regionally competitive." *Id.* The 2011 CEP established these goals in response to statutory mandates as well as broad public input. Poor pf. at 2-4.

The Project is consistent with the 2011 CEP's goal of acquiring 90 percent of the state's energy needs from renewable resources by 2050. Poor pf. at 5-6. The expansion of natural gas infrastructure provides: (1) opportunities to increase the efficiency level of appliances and equipment relative to other fossil fuel (e.g., propane and fuel oil) appliances and equipment; (2) opportunities for further efficiency from whole building retrofit and other demand-side management measures; and (3) the opportunity for renewable resources, such as bio-methane resources, to have increased access to customers. Poor pf. at 6. Importantly, if total Vermont energy consumption across sectors remains constant, the proposed Project would increase the natural gas share of total Vermont energy consumption from 5.9 percent to 6.6 percent. Poor pf. at 6.

In this proceeding, parties such as CLF have focused almost exclusively on the 2011 CEP's goal of meeting 90 percent of the state's energy needs from renewable sources by 2050. *E.g.*, Stanton pf. at 23. Such a narrow reading of the 2011 CEP, however, is inappropriate and fails to give due consideration to other equally important goals, such as ensuring affordability and reliability of energy sources, among other things. In the context of the myriad objectives embodied by the 2011 CEP, not to mention the statutory requirements of section 248, the Project is consistent with state energy policy as it will provide a cost-effective, competitive alternative to existing fossil energy fuels. In this way, the Project will facilitate the conversion of many homes and businesses from the more environmentally intensive fuel oil and propane resources to the cleaner burning natural gas. And it will deliver this fuel through a pipeline that is generally safer, cleaner, and more reliable than the truck-based system that exists to deliver fuel oil and propane. In this way, the Project advances important goals related to affordability, reliability, safety, and environmental responsibility embodied in the 2011 CEP.

Even were we to focus only on the goal of meeting 90 percent of the state's energy needs from renewable resources by 2050, the Project still passes muster. As indicated by Department witness Poor, the Project would increase the natural gas share of total Vermont energy consumption from 5.9 percent to 6.6 percent. Poor pf. at 6. This is even before the acquisition of energy efficiency resources from new customers. This number is important to put the overall effect of the Project in perspective. Moreover, as the evidence in this proceeding showed, this addition to natural gas's share of total energy usage is not expected to be incremental to total fossil fuel usage in the state. Rather, the natural gas service provided by the Project is anticipated to displace other fossil fuel usage (i.e., fuel oil and propane). In this way, the Project does not result in a net increase in the overall fossil fuel share of the state's energy mix. Accordingly, the Project remains consistent even with the goal of meeting 90 percent of the state's energy needs from renewable resources by 2050.

The Department would also highlight that the Project will facilitate the use and development of bio-methane resources, both inside and outside of Vermont. As explained by Department witness Poor, bio-methane is a renewable fuel produced by the digestion of organic matter that is identical in composition to natural gas. Poor pf. at 8. There is at least one bio-methane initiative currently planned, and the Project provides an outlet for this type of fuel, both geographically and with respect to increased market demand. Poor. Pf. at 8. The testimony of Department witness Poor and Vermont Gas witness Simollardes alternately suggest different regulatory structures that could be put in place to encourage the further development of this important resource, with Mr. Poor suggesting a program akin to the state's electric standard offer program and Ms. Simollardes suggesting a program akin to Green Mountain Power Corporation's (GMP) Cow Power program. Poor pf. at 8; Simollardes pf. reb. at 6-7. As explained by Vermont Gas witness Simollardes, such a program would allow customers interested in having a portion of their natural gas demand met by bio-methane could voluntarily participate in a bio-methane program. Simollardes pf. reb. at 7. Upon consideration of these alternative structures, the Department recommends that a program similar to GMP's Cow Power program would be a useful mechanism to foster the development of bio-methane, as it will allow ratepayers the opportunity to purchase a "green" natural gas product, while at the same time providing a critical revenue source

to an emerging renewable fuel industry. The Department therefore urges the Board to find that it would be in the public good for Vermont Gas to further explore this idea.

In order to further explore this idea, and in light of Vermont Gas's receptivity to it, the Board should direct Vermont Gas to file a proposed program similar to the Cow Power program that will enable customers to voluntarily choose to receive "renewable" natural gas to be supplied either from bio-methane or the purchase of renewable attributes where bio-methane is not available. As part of this program, Vermont Gas should acquire all reasonably available, societally cost-effective bio-methane resources. Vermont Gas should also propose a detailed plan within three months of the date this order issues describing and proposing: (1) the local reasonably achievable societal cost-effective potential for bio-methane resources; (2) the programmatic features and mechanisms necessary to acquire bio-methane resource; and (3) actionable targets for acquiring all reasonably available cost-effective bio-methane, inside and outside of Vermont, and/or other renewable products, such as renewable energy certificates, where bio-methane is not available. Prior to making this filing, Vermont Gas should consult with the Department as to the structure and features of this program.

Conclusion

In light of the foregoing, the Department recommends that the Board find that subject to certain conditions, the Project meets the criteria set forth in section 248(b) and is in the general good of the state. The Department recommends the following conditions:

1. Vermont Gas must file detailed plan within three months of the date this order issues a proposed program similar to the Cow Power program that will enable customers to voluntarily choose to receive "renewable" natural gas to be supplied either from bio-methane or the purchase of renewable attributes where bio-methane is not available.
2. After consultation with relevant parties and any new adjoining landowners, Vermont Gas must file a detailed map setting forth a proposed route that stays generally within or adjacent to the VELCO corridor in the Rotax Road region. Vermont Gas should file supporting testimony that compares its February 28th proposal with the alternative route

through the VELCO corridor and evaluates the advantages of co-locating in the VELCO corridor against the incremental burdens on and adjacent to the corridor.

3. Within thirty days of the completion of construction of the Project (inclusive of landscaping plans), Vermont Gas shall coordinate a post-construction assessment with the Department of all landscape mitigation to confirm that the installations are completed as envisioned and are sufficient to effectively mitigate the specific locations they are intended to address. Vermont Gas shall use reasonable efforts to consider and incorporate reasonable suggestions for additional mitigation presented by the Department.
4. Thereafter, Vermont Gas shall file a report with the Board explaining the results of this analysis, as well as any areas of disagreement between Vermont Gas and the Department. The Board will be the final arbiter of any disputes and reserves the right to require Vermont Gas to install additional mitigation measures.
5. Post-construction noise monitoring shall be conducted at all gate station sites to ensure that the noise levels do not exceed 55 dB in the daytime or 45 dB at night, as measured at the closest occupied structure.
6. The New Haven gate station should be constructed as prescribed by Department witness Raphael with respect to the color of construction materials to be utilized.
7. The New Haven gate station shall be equipped with light fixtures that provide shielded-down lighting and that are motion-sensor activated. In the event the motion-sensor activated lights result in complaints from the community, adjoining landowners, or the town, human-activated lights are an acceptable alternative.
8. All additional safety measures recommended by Department witness Berger shall be implemented in the design, construction, and operation plans of Vermont Gas.

Dated at Montpelier, Vermont this 11th day of October, 2013.

VERMONT PUBLIC SERVICE DEPARTMENT

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cc: Docket No. 7970 Service List

PSB Docket Nos. 7970 - SERVICE LIST

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