Diane Roy
Director, Regulatory Strategy and Business Analysis

16705 Fraser Highway
Surrey, B.C. V4N 0E8
Tel: (604) 576-7349
Cell: (604) 908-2790
Fax: (604) 576-7074
Email: diane.roy@terasengas.com
www.terasengas.com

Regulatory Affairs Correspondence
Email: regulatory.affairs@terasengas.com

February 10, 2011

Commercial Energy Consumers Association of British Columbia
c/o Owen Bird Law Corporation
P.O. Box 49130
Three Bentall Centre
2900 – 595 Burrard Street
Vancouver, BC
V7X 1J5

Attention: Mr. Christopher P. Weafer

Dear Mr. Weafer:

Re: Terasen Gas Inc. ("Terasen Gas")
Application for Approval of a Service Agreement for Compressed Natural Gas ("CNG") Service and for Approval of General Terms and Conditions ("GT&Cs") for CNG and Liquified Natural Gas ("LNG") Service (the "Application")

Response to the Commercial Energy Consumers Association of British Columbia ("CEC") Information Request ("IR") No. 2

On December 1, 2010, Terasen Gas filed the Application as referenced above. In accordance with Commission Order No. G-181-10 setting out the Regulatory Timetable for the review of the Application, Terasen Gas respectfully submits the attached response to CEC IR No. 2.

If you have any questions or require further information related to this Application, please do not hesitate to contact Shawn Hill at (604) 592-7840.

Yours very truly,

TERASEN GAS INC.

Original signed:

Diane Roy

Attachment

cc (e-mail only): Erica Hamilton, Commission Secretary
Registered Parties

1. Reference: Exhibit B-1, Page 2

> TGI has previously offered a regulated NGV service. The Company's past NGV initiatives, which ultimately failed to gain lasting traction, included NGV fueling stations and targeted light-duty NGV vehicles served by a public refueling network. By contrast, TGI is now targeting return to base fleets of buses, heavy-duty and vocational trucks. The proposed rate structures require firm "take-or-pay" (i.e. minimum contract demand) commitments, with rates set to recover from the particular customer over the term of the service agreement the cost of investing in and maintaining CNG/LNG facilities located on the customer's property to permit refueling. The specific terms and conditions of service agreements with customers will vary

1.1 Please contrast the service General Terms and Conditions (GT&C) provided to TGI residential, commercial and industrial customers with this proposed CNG/LNG service, in terms of;

1.1.1 Average size of energy demand requirement per customer and range of size

Response:

The TGI GT&C does not specify the average size of energy demand requirement per customer and /or range of size per customer, therefore TGI is unable to provide a comparison to the proposed CNG/LNG terms of service. With the exception of Section 12 Main Extensions, where the number of customers and projected revenue are taken into account, the average size of energy demand and range of size for each rate class are not specifically defined.

In Appendix B of the Proposed TGI General Terms and Conditions (GT&Cs) – Section 12B, the average size of energy demand and range of size for each rate class is also not specifically defined as that will be negotiated with each specific tariff supplement that will be filed with the Commission, and will be specific to that agreement.

The average size of energy demand requirement and range of size for CNG/LNG service is estimated to be significantly larger than the current typical residential, commercial and industrial annual consumption on an annual basis.

Please refer to Attachment 1.1.1.

1.1.2 Investment in the supply system to service equivalent size demands

Response:

Please refer to CEC IR 2.1.1.4.

1.1.3 General terms and conditions regarding "take or pay" or minimum demand

Response:

The TGI general GT&Cs do not contain a "take or pay" or minimum demand clause for residential, commercial and industrial customers. However, each rate schedule does contain a "minimum charge per month" which usually consists of the basic charge per month, franchise fees (if applicable), and demand charges (if applicable).

With respect to the proposed rate structures for CNG/LNG service that require firm "take-or-pay" or minimum contract demand commitments, with rates set to recover from the particular customer of over the term of the service agreement the cost of investing in and maintaining CNG/LNG facilities located on the customer's property to permit refueling, there is much more financial security for TGI in this type of service agreement. In the responses to CEC IRs 2.2.1 and 2.2.2, TGI explains why it is appropriate at this time to require greater security from CNG/LNG customers than is obtained in the case of new extensions adding core customers.

Please refer to Attachment 1.1.3.

1.1.4 Recovery of cost from each particular customer over a service agreement term

Response:

In TGI's general GT&C, each potential project must pass a main extension test based on variables such as number of customers, consumption estimates etc. If the profitability index is greater than 0.8, then the project may go ahead, however, it is based on volume estimates and there are no guarantees that the volumes will be achieved.

With the proposed CNG/LNG proposed service terms there is a guarantee through the "take or pay" or minimum demand requirement that the forecast cost of service occurring during the contract term will be recovered from the customer. In the responses to CEC IRs 2.2.1 and 2.2.2 TGI explains why it is appropriate at this time to require greater security from CNG/LNG customers than is obtained in the case of new extensions adding core customers.

Please refer to Attachment 1.1.4.

1.1.5 Location of facilities on a customer's property to deliver fuel

Response:

TGI's GT&Cs do not offer the option for customers to locate facilities on a customer's property to deliver fuel. The only exception to this is not in the TGI GT&C, but in Rate Schedule 6A General Service – Vehicle Refueling Service, in which TGI does not have any customers participating in, nor has it had any customers participating in for many years.

Please refer to Attachment 1.1.5.

1.2 The CEC is interested in determining how different these CNG/LNG customers really are from TGI's other customers and whether or not the GT&C for this CNG/LNG class of customer are potentially more or less onerous than those for other customers or aggregate groups of customers with similar demand requirements. Please comment on the difference between the customer demands for the different classes of customers and the GT&C being proposed.

Response:

NGV customers (CNG and LNG) are comparable to TGI's existing customer base and in many situations will already be customers that TGI is serving. For example, Waste Management is already taking NG delivery service as a commercial customer and is using the gas for space and water heating applications. The primary difference between an NGV customer and the bulk of TGI's customers is that the load that they require does not have seasonal peaks; hence, the load profile for NGV applications does not present peak supply challenges for the TGI system. In fact, the high load factor NGV load makes more efficient use of the TGI infrastructure.

The GT&Cs proposed for the NGV service are in general more onerous than the GT&C's required of most customer classifications. The "take or pay" volume commitment is not a requirement under most service offerings. For example, the MX test conducted to assess the economic viability of a new commercial customer or a new residential complex is based on estimates of load additions. If that load fails to materialize all customers share in the risk.

TGI has proposed the "take or pay" requirement in the NGV GT&Cs in recognition of the perception held by some that, at the current stage of NGV development, NGV load may present more risk than the addition of commercial or residential load. As discussed in the response to BCUC IR 2.3.2, TGI believes that the "take or pay" approach over the initial contract term forms a reasonable balance and sharing of risk between new NGV customers and existing customers. TGI also believes that it is reasonable for existing customers to share in the potential risk of adding NGV load, just as they do in the case of main extensions, as all customers benefit from the addition of cost effective NGV load in the manner discussed in Section 3.1 of the Application.

In general the load added by an NGV customers is also quite large for each site. Projects that TGI are evaluating at present range from 6,000 GJ to 140,000 GJ, so NGV customers are adding load comparable to large commercial or industrial customers. Thus the load building benefits from adding NGV customers are significant for each account, providing benefits to all TGI customers as discussed in section 3.1 of the Application.

1.3 If requested, does TGI have an obligation to serve customers wanting natural gas services given the position TGI has in the market regarding capability to provide natural gas service?

Response:

Under section 28 of the Act, public utilities are under an obligation to "supply its services to premises that are located within 200 metres of its supply line or any lesser distance that the commission prescribes as suitable for that purpose." Section 29 sets out the criteria for providing service to premises over 200 metres away. Section 30 deals with main extensions. TGI interprets the obligation to provide "its service" as meaning the services for which TGI has obtained the approval of the Commission for offering to the public for compensation. Thus, once Commission approval has been obtained for a tariff offering for CNG and LNG service, TGI is subject to the statutory framework relating to the obligation to provide "its service" to the public. In the absence of a standard form agreement, the Commission will still have to approve each customer contract, thus giving the Commission the ultimate say over whether a particular customer can obtain CNG or LNG service.

Leaving aside TGI's legal obligations to serve, existing TGI customers will benefit from the introduction of the proposed service due to increased economic and cost effective load on the TGI delivery system. As TGI supports the market transformation towards large-scale adoption of NGV for the transportation market, starting with heavy duty return-to-base vehicles, TGI will promote substantive load growth and increased utilization of the TGI delivery system, resulting in delivery rates that are lower than otherwise necessary. Provided that acceptable terms can be negotiated with individual customers for CNG and LNG service on a "take-or-pay" basis, TGI believes that there is great advantage to existing customers to try to make CNG and LNG service available to NGV customers within the TGI service area. As such, TGI believes that it should be seeking to provide and promote this service.

2. Reference: Exhibit B-1, Page 3

Section 3 of this Application outlines several benefits associated with TGI providing the CNG and LNG Services through a business model that relies on Commission-approved firm "take-or-pay" commitments from identified customers, with rates that recover the cost of service from the NGV customer over the term of the service agreement. Briefly, the three key benefits discussed in Section 3 include:

2.1 Does TGI have a test for other customer classes that service of their requirements must produce benefits for other TGI customers?

Response:

As described in our response to BCUC IR 2.1.1, TGI employs an MX Test to ensure that customers added to our delivery system are forecasted to be economically beneficial to the system. This is in addition the contract proposed for incremental NGV customers in the Application. To be clear GT&C Section 12B requires the CNG/LNG customer to pay a rate that recovers the forecast cost of service during the contract term, and that the CNG/LNG customer sign a "take or pay" agreement. There is no test (as would seem to be suggested in the question) that requires the customer taking service under Section 12B to generate benefits for other TGI customers; rather, this is merely the result when a new customer pays for its forecast cost of service for the CNG/LNG service and the customer takes gas service under other rate schedules to bring the gas to the fueling facility. It is the additional load on TGI's distribution system that provides the benefit of reduced delivery rates, all else equal.

TGI takes steps to mitigate against the risk of new customers not covering their incremental forecast costs of service through tools such as the Main Extension ("MX") Test or through "take-or-pay" agreements with large customers. What differentiates the CNG/LNG proposal from other commercial and residential service is that:

- The rate paid by the new customer for CNG/LNG service recovers the forecast cost of service that occurs during the term of the contract from the new customer, as opposed to having all customers bear some of that cost; and
- the proposed service requires contractual guarantees that the customer will "take or pay" for a minimum contract demand.

By contrast, new customers added on a main extension might contribute to their incremental cost of service through a Contribution in Aid of Construction, but existing customers always take the risk of bearing some of the cost of adding that load in the event that the load is less than forecast. The MX test provides no guarantee that the forecast volume from new customers will be achieved, and if the new load anticipated for a main extension does not materialize then the result might be that the benefits of the new load are outweighed by the higher cost of service. The "take or pay" provision provides additional comfort that TGI customers as a whole will achieve the expected benefits from additional gas throughput on the TGI system. TGI has "take or pay" agreements with some large customers. TGI believes it is appropriate to require "take or pay" contracts for NGV customers until the business has matured enough to give existing customers comfort that this NGV business is beneficial to all customers.

2.2 Does TGI have a test for other customer classes that each individual customer must bear all of their own costs of service over a service agreement term?

Response:

No, as discussed in our response to CEC IR 2.2.1, TGI does not have such a test and NGV customers would be the first customer class to be subject to such a test.

TGI has proposed the NGV business in this manner in part because of concerns resulting from our prior business model for NGVs, which resulted in a loss that was borne by all delivery customers related to a loss on the disposal of certain assets. TGI is hopeful that, as the NGV business matures and grows in size and scope, such a test may no longer be necessary, however, we believe our proposed program is reasonable as a starting point to ensure the success of the proposed program with reduced risk to existing customers.

3. Reference: Exhibit B-1, Page 8

traction. The investments required on the part of TGI to facilitate CNG and LNG Services on this new proposed model are relatively modest, and the benefits of providing service are captured with only modest risk to the Company's existing natural gas customers.

3.1 Please describe the nature of the investments required to facilitate CNG and LNG Services in terms of average $/GJ of demand and provide the potential range expected.

Response:

The investments required to facilitate CNG and LNG Services include two components: capital cost of the fueling station and annual operations and maintenance. The fueling station is designed and constructed based on a number of factors. These include the numbers of vehicles requiring service, the underlying nature of their use, fuel type, fuel consumption, and fueling site specifications, amongst other factors. The range of capital investments TGI has been developing for potential customer applications range from $300,000 to over $2,500,000, with annual O&M estimates ranging from $8,000 to over $60,000 per year.

The capital investments and forecast O&M that occur during the contract term are recovered through the cost of service based negotiated contract rate. As a result, the contract rates for CNG and LNG Service will be specific to each customer and will vary depending on the level of capital investment, forecast O&M and the minimum contract demand.

Current estimates of contract rates for potential CNG and LNG Service agreements range from approximately $2.00/GJ to over $10.00/GJ, demonstrating the variance in fueling infrastructure requirements and contract demand amongst CNG and LNG Service customers.

3.2 Please describe the risk TGI might be undertaking in providing the CNG and LNG Services in terms of the probability of failure and the consequences of failure.

Response:

The business model that is proposed in this Application provides a balance of risk and rewards between existing customers and new customers. The capital investment in fueling infrastructure represents a potential risk if the infrastructure is not productively used over its 20 year expected life. NGV customers are being required to assume a large portion of the capital risk by entering into long term "take-or-pay" agreements that cover the cost of service associated with the station investment occurring over the term of their fueling agreements. TGI will normally require an initial contract term that is at least as long as the life of the vehicles being purchased for that site. This is generally a term of 5 to 10 years.

Upon expiry of the initial term there is a potential risk of stranded assets. As discussed in the response to CEC IR 2.6.1, TGI has a multi-tiered approach to managing the risk of stranded assets. The strategy includes having facilities that can be moved. When possible, TGI may also negotiate terms whereby the customer agrees to a renewal provision or a buyout of capital. To the extent that such risk is not managed, all customers are at risk. However, TGI believes that the risk is relatively modest when the mitigation strategies are considered, particularly when considered in comparison to other customer additions (see CEC IR 2.3.5, 2.2.1 and 2.2.2). TGI's belief is that the remaining non-mitigated risk of stranded assets to existing customers is justified in the overall context by the benefits to existing ratepayers from the addition of NGV load on the system as discussed in Section 3.1 of the Application.

3.3 Please explain why TGI believes the risk to be modest by contrasting the risk with risks TGI undertakes for other customer classes.

<u>Response:</u>

As discussed in our response to CEC IR 2.2.1 and 2.2.2, the proposed NGV business would be the only line of business currently undertaken by TGI that would have contractual guarantees that the incremental forecast cost of service occurring during the initial years of service would be recovered from the incremental customers. While TGI employs risk mitigation tools to increase the likelihood that other incremental customers will contribute their incremental forecast costs of service to the TGI delivery system, TGI has no "take or pay" contracts with residential or commercial customers, which causes TGI to believe that the risk of stranded asset risk is relatively modest for NGV customers as compared to residential and commercial customers. All other things being equal, this "take or pay" model with a cost of service based rate reduces the stranding risk of NGV relative to a similar investment in a main extension for commercial and residential customers. TGI believes that it is appropriate at this stage of development of the NGV business to require this additional security from NGV customers, thereby differentiating the new initiative from past, less-successful retail level NGV initiatives.

4. Reference: Exhibit B-1, Page 9

However, natural gas consumed by the transportation sector has decreased dramatically since 1992. The peak in 1992 was achieved primarily due to the high level of vehicle conversions and a wide price differential between natural gas and gasoline. Terasen Gas believes the decline in consumption from light duty vehicles over the past ten years is due a number of reasons:

- In the period from 2001 to 2003 the price advantage of natural gas versus conventional fuels narrowed to the point where there was insufficient economic incentive to switch fuels given the differential in capital cost between the two options;[3]

4.1 As the price advantage for natural gas NGVs versus Gasoline Powered Vehicles (GPVs) narrowed, changing the economic incentive to switch fuels, did TGI loose customers from any of its other customer classes?

Response:

Terasen Gas does not have any other customer classes with a likelihood for sensitivity to the price difference between natural gas and gasoline, and thus does not believe that this difference has had a material impact on any other rate classes.

4.2 What were the consequences, if any, in terms of stranded investment relative to loss of customers in other customer classes as the price of the natural gas commodity changed significantly?

Response:

Terasen Gas does not currently track individual assets stranded by customers leaving our distribution system, nor their reasons for doing so. The Company believes the tracking would represent too great an administrative burden, resulting in overly high costs relative to the expected benefit of such tracking under our current Customer Information System. In general terms, however, it is readily observed from our customer usage forecasts in past Revenue Requirement Applications that use per customer is declining. It is also believed that new customers added to our system use less gas than existing customers due to a greater penetration of high efficiency appliances in new homes and the use of other energy forms. On the whole then, total customer demand is declining, leading to higher delivery rates, which is what the introduction of an NGV refuelling business is intended, to some extent, to mitigate against.

5. Reference: Exhibit B-1, Page 12

The cost of service model generates a levelized 20 year rate that is then converted to an inclining rate structure over time. The rate of increase is fixed through negotiations with the customer and is set at a level that is intended to represent a general escalation factor. The intent is to generate a stable and predictable rate that increases but at a pace that is acceptable to the customer. In addition, the inclining rate reduces the early term rates making it easier for customers to adopt NGVs.

5.1 Does this escalating rate structure mean that current TGI customers will pay for some portion of the cost of service in the early years and that TGI customers in later years will pay proportionately less because CNG and LNG customers are paying more in later years?

Response:

The escalating rate structure results in annual revenue deficiencies in the early years of the contract and annual revenue surpluses in the later years of the contract; all else equal, this will increase the delivery rates of all TGI non-bypass customers in early years but will also serve to decrease the delivery rates of all TGI non-bypass customers in later years.

The table below provides a contract rate and revenue proof based on the LNG example referenced on pages 12-14 of the Application. As shown on Line 23 below, this proof demonstrates that on a present value basis, the annual revenue deficiencies and surpluses have a net impact of zero to TGI non-bypass customers over the contract term.

Contract Rate and Revenue Proof, Using BCUC IR 2.8.1, Attachment 8.1

($000's, unless otherwise stated)

Line	Particulars	Reference	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1	PV Revenue Requirement, (contract term - 10 yrs)	BCUC IR 2.8.1, Schedule 10, Line 24	667,412									
2	Disount Factor	[1]	8									
3	Annual Contract Rate, Year 1, $	Line 1 / Line 2	87,299									
4	Annual Contract Rate, Year 1, $/GJ	Line 3 / Line 12	5.14									
5												
6	Discount Rate		6.83%	6.90%	6.90%	6.90%	6.90%	6.90%	6.90%	6.90%	6.90%	6.90%
7	Discount Year		1	2	3	4	5	6	7	8	9	10
8												
9	Base Contract Rate ($/GJ)	Line 4	5.14	5.14	5.24	5.34	5.45	5.56	5.67	5.78	5.90	6.02
10	Annual Rate Escalation	2%	-	0.10	0.10	0.11	0.11	0.11	0.11	0.12	0.12	0.12
11	Annual Contract Rate	Line 9 + Line 10	5.14	5.24	5.34	5.45	5.56	5.67	5.78	5.90	6.02	6.14
12	Minimum Contract Demand (GJ)		17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000
13	Revenue	Line 11 x Line 12	87,299	89,044	90,825	92,642	94,495	96,385	98,312	100,279	102,284	104,330
14												
15	PV of Revenue	Line 13 / (1+Line 6) ^ Line7	81,715	77,927	74,358	70,953	67,704	64,603	61,645	58,822	56,128	53,557
16	Total PV of Revenue	Sum of Line 15	667,412									
17	Revenue (Deficiency)/Surplus, Contract Term	Line 16 - Line 1	-									
18												
19	Annual Cost of Service	BCUC IR 2.8.1, Schedule 11, Line 14	104,478	86,732	91,408	93,881	95,275	95,806	95,647	94,937	93,784	92,280
20	Annual Revenue (Deficiency)/ Surplus	Line 13 - Line 19	(17,179)	2,312	(583)	(1,239)	(780)	578	2,665	5,342	8,500	12,050
21												
22	PV of Annual Revenue (Deficiency)/Surplus	Line 20 / (1+Line 6) ^ Line7	(16,080)	2,024	(477)	(949)	(559)	388	1,671	3,134	4,664	6,186
23	Total PV of Annual Revenue (Deficiency)/Surplus	Sum of Line 22	(0)									
24												
25	[1] sum of [(1+inflation) ^ year / (1+WACC) ^ year] for each year of the contract											

5.2 If this shaped inclining payment structure for the CNG and LNG service agreement is to be negotiated and approved by the Commission, is TGI proposing any limits to the extent it may tilt the incline for the payment stream from the service agreement?

Response:

TGI has not proposed any limits within the present Application; however, each agreement will be submitted to the Commission for approval. The intent of the slope of the inclining rate line is that the escalation would be roughly competitive to the expected rate of increase in the cost of conventional fuels such as diesel.

Practical limits will also be imposed by the customer in the negotiation process. For example, it is difficult to envision a scenario where the customer would accept a 10% annual increase in the cost of the fueling service.

6. Reference: Exhibit B-1, Page 12

> The term of the initial agreement is set to match the lifetime of the fleet of vehicles that will be served by the fueling station, and the customer provides a "take–or-pay" commitment[8] to pay for a minimum amount of natural gas fueling service on a monthly or yearly basis. The life of the vehicles in the projects that Terasen Gas has been targeting ranges from 5 to 10 years; therefore, the term on the initial contract is tied to the life of these assets. After the initial term of

6.1 Is requiring payment from the customer over a short vehicle life term and the mobile relocation of facilities the main methods TGI is using to mitigate stranding risk?

Response:

Before addressing the mitigation measures, TGI wishes to clarify the reference to a short vehicle life as being a risk mitigation measure. For clarity, a longer term agreement with a cost of service based "take or pay" rate reduces the stranding risk more than a shorter term agreement because there is less undepreciated assets at the conclusion of the initial term. The contract rate in the service agreement recovers the cost of service as it occurs during the term of the contract, which will be roughly the same cost of service each year whether the term is 5 years or 10 years. It is the customer that is driving having a shorter term than would be required to fully recover TGI's investment, as the useful life of the customer's own vehicles is the maximum term to which most customers would agree. Shorter term agreements are thus considered when estimated vehicle usage (annual kilometeres) is higher.

TGI seeks to mitigate stranded asset risk in the following ways:

First, TGI seeks to mitigate the risk of stranded assets through mobility of assets. As described on page 51 of the Application, TGI could redeploy assets that make up to 50-70% of the capital cost of the facilities into other services. While TGI cannot estimate the recoveries that may be possible at this time, does not mean that this risk mitigation option is not viable.

A second means of mitigation is that a large part of the capital is recovered over the initial contract term using the "take or pay" contract methodology. This is a departure from how TGI does business in many other customer classes. For example main extensions are made based on forecasts of customer demand without the requirement of "take or pay" volume commitments. In this sense, existing customers have greater confidence of cost recovery with NGV customers than with the addition of any other residential or commercial customer.

A third mitigating factor exists with respect to service agreement commitments. When possible, TGI may negotiate terms whereby the customer agrees to a renewal provision or a buyout of capital.

A fourth mitigating factor is that customers are making major commitments to NGVs on the basis of the economic and environmental benefits that they will receive. TGI believes that the chances of these benefits being eliminated at the time of contract renewal are low given the present environment of escalating diesel fuel prices and forecasts of stable natural gas prices.

TGI believes that these measures provide additional protection to existing customers from the risk of stranded assets than is present when other residential and commercial customers are added. Please see the responses to CEC IR 2.2.1 and 2.2.2 in this regard.

6.2 Why has TGI not looked at GTC which allow a term roughly equivalent to the TGI facility life?

Response:

TGI will normally require a contract term that is at least as long as the life of the vehicles being purchased for that site. This is generally a term of 5 to 10 years. TGI believes it is reasonable for NGV customers to commit to the fueling infrastructure for this period of time. TGI also believes that it will be difficult to get customers to commit to longer time periods because such a commitment presupposes that they will have an overall positive experience in operating NGVs over the initial 5 – 10 year period. A GT&C which allows a term equivalent to the facility life (ie. 20 years) may discourage potential customers from committing to service agreements.

Where possible, TGI will encourage the customer to commit to as long a term as possible as it will further reduce the amount of unrecovered costs at the end of the initial term and thus reduce risk. TGI requires some negotiating flexibility with respect to negotiating appropriate terms for each customer.

6.3 Has TGI looked at differential pricing for customers who take longer term service agreement periods versus shorter ones, in order to price in risk?

Response:

TGI has proposed that NGV refueling service contracts will require the customer to pay a rate sufficient to recover the forecast costs of service occurring during the contract term. The length of the term affects the amount of unrecovered cost remaining at the end of the term, and TGI recognizes that longer term take or pay contracts with cost of service based rates will further reduce the risk to customers.

However, TGI has not examined any options that would intentionally result in the customer paying substantially more or less than the forecast incremental cost of service incurred to serve the incremental customer over the course of their contracted service agreement, regardless of its length. Charging NGV customers more than the forecast cost for short contracts of service, for example, reduces the attractiveness of natural gas versus conventional fuels. Charging less than the forecast cost of service over the term of a long contract still leaves risk for existing customers unless the term extends beyond the life of the assets. TGI believes that potential NGV customers are unlikely to be receptive to agreements of that length at this time.

7. Reference: Exhibit B-1, Page 14

- Excess Throughput Rate – In the event the customer throughput exceeds projected volumes by more than 15%, there is potential for the customer to be overcharged for the fueling service. To reduce the potential for overcharging, the fueling service rate will be reduced to 25 - 50% of the base rate for all volumes in excess of 115% of the contracted volume commitment. This approach ensures that the potential to over-recover cost of service is limited.

7.1 Given that customer volumes may vary considerably based upon their market conditions during the term of the service agreement and that TGI's interest in only in 'take or pay' recovery of cost of service did TGI consider making the cost to the customer simply a dollar cost per time period as opposed to a $/GJ cost of service?

Response:

Please refer to the response to BCUC IR 2.9.3, which discusses the merits of a monthly charge style of rate such as used in Rate Schedule 22 and 22A Bypass Agreement Tariff Supplements.

7.2 If TGI did consider this, why was it rejected in favour of a structure which can result in overcharging of a particular customer and one which needs more complex alternate rates if the overcharging becomes too much?

Response:

TGI does not accept the premise that the structure proposed can result in overcharging the customer. The rate design which combines a base rate with an excess throughput rate is designed to prevent overcharging. The level of the excess throughput rate is set at an amount that recovers the incremental costs associated with the excess throughput.

There are alternative approaches to how rates might be structured. Each has strengths and weaknesses. Please refer to the response to BCUC IR 2.9.3 which discusses the merits of a monthly charge style of rate such as the ones used in Rate Schedule 22 and 22A Bypass Agreement Tariff Supplements.

TGI believes that the approach taken here is the most appropriate for the market we are proposing to serve. In addition, TGI has had no feedback to date from prospective customers indicating that they are not comfortable with the proposed rate structure.

7.3 If TGI did not consider this, would TGI have a problem with a rate which was not '$/GJ' based but instead was '$/time period' based.

Response:

Please refer to the response to BCUC IR 2.9.3 which discusses the merits of a monthly charge style of rate such as used in Rate Schedule 22 and 22A Bypass Agreement Tariff Supplements.

8. Reference: Exhibit B-1, Page 19

> recovered in rates. Extension tests and connection policies are used to ensure that new customers pay the costs of service so that the additional load is beneficial to customers as a whole.

8.1 Do the existing extension tests and connection policies require all cost of service to be paid by the customer?

Response:

No, the existing extension tests and connection policies contemplate that new customers may have to provide a Contribution in Aid of Construction in some circumstances; however, existing customers share in the costs of extending the system. The rationale for sharing the costs among all customers is that they will still benefit from the additional load, which results in lower delivery rates (all else equal). Please see the response to CEC IRs 2.2.1 and 2.2.2 for TGI's explanation for why TGI is proposing to require a greater commitment from NGV customers than is required of other new commercial and residential customers.

8.2 Does TGI have take or pay service agreements with any of its other customers or customer classes?

Response:

Yes, TGI does have "take or pay" type of service agreements. For example, there is a minimum monthly charge for Rate Schedule 22 Large Volume Transportation customers based in part on a minimum quantity of 12,000 Gigajoules for that particular month modified by any adjustments for curtailment or Force Majeure.

Please refer to the response to BCUC IR 2.9.3, which explains why the proposed rate structure is preferable to the rate structure for Rate Schedule 22 or 22A customers.

8.3 Do the existing extension tests and connection policies involve estimating future customer demand and anticipating recovery of cost based on these estimates, with only costs in excess of the anticipated recovery being charged as connection costs to the customer?

Response:

Yes, the Main Extension Test ("MX Test") is a ratio of the discounted present value of all the forecast net cash inflows over twenty years divided by the discounted present value of the capital costs of attaching customers in the first five years of the main extension. For TGI, the PI threshold for individual main extensions is 0.8 while the aggregate PI threshold is 1.10. Excess costs that result in the extension failing to meet the PI threshold are recovered from an individual customer. For example, if an MX Test had a PI of 0.6, a connecting customer would have to pay a contribution to reach the PI threshold of 0.8. Please see the response to CEC IRs 2.2.1 and 2.2.2 for TGI's explanation for why TGI is proposing to require a greater commitment from NGV customers than is required of other new commercial and residential customers under the MX Test.

9. Reference: Exhibit B-1, Page 21

> The proposed rate structures, which contemplate investment in projects backed by "take-or-pay" service agreements, generate immediate benefits for existing natural gas customers and stand on their own regardless of how successful TGI is in developing the NGV market in the long-term.

9.1. Please confirm that the proposed service agreements 'stand on their own' so long as the customers do not go out of business during the term of the service agreement.

Response:

Yes, the proposed service agreements 'stand on their own' in the sense that they contain all the necessary terms and conditions of CNG/LNG service. Natural gas service will be provided under another rate schedule.

With respect to the reference to customers going out of business, TGI has taken steps to mitigate the risks associated with customers going out of business during the term of the service agreement.

Firstly, the physical nature of the fueling station assets reduces the risk of stranded assets should the customer go out of business. Compressor enclosures and components are delivered as skid-mounted systems, allowing for ease of mobility. TGI's experience developing fueling station cost estimates indicates that approximately 50% - 70% of the fueling station capital consists of mobile assets, with the balance being local site engineering design which would not be transferrable. Thus, TGI would be able to recover the bulk of the mobile assets and relocate them for use in other projects.

Secondly, TGI has and will request its NGV customers to undergo an internal credit assessment. Consistent with the treatment of new Commercial and Industrial customers, NGV customers are required meet minimum credit standards before fueling service will be offered. The credit assessment generates a weighted score based on the following criteria:

- Years in operation;
- Industry risk factor;
- Payment history (within the Terasen Utilities);
- Standard & Poor's or Moody's rating (if applicable);
- Equifax rating (if applicable);

- CRMZ Z score (if applicable);
- Net dollars at exposure;
- Financial statements (if provided);
- Bank and trade references (if provided); and
- General information (ie. stock price, general company news, industry news).

The cumulative customer score falls in one of three categories. These are 1) approved unsecured, 2) approve but put on watch list, and 3) security recommended. Examples of security would include a cash security deposit, irrevocable standby letter of credit, or parental guarantee. To date, TGI has only entered into negotiations with customers falling into the first tier, approve unsecured.

TGI's credit assessment process, along with the mobility of fueling station assets, both serve to mitigate the risks associated with customer business failure during the term of an agreement.

9.2 Has TGI determined what the rate of business failure is for the return to base fleet businesses it is targeting and if so could this be provided?

Response:

TGI has not studied the rate of business failure within its target market due to resource constraints and a lack of available of information. TGI has, however, taken steps to mitigate the risk associated with business failure of its own potential customers, as described in its response to CEC IR 1.9.1.

10. Reference: Exhibit B-1, Page 23

residential load added in 2009. Put another way, TGI would need only 36 NGV stations with the same "take-or-pay" demand as the WM Agreement to add, on an annual basis, the equivalent residential load added in all of 2009. These figures illustrate why it is important for TGI to provide a service offering for NGVs that will help to add load.

10.1 With this significance of benefit it may be more important to the public interest to reduce the burden on potential NGV station customers created by take or pay service agreements. When will TGI reassess this class of service and consider if other models may be more appropriate?

Response:

TGI agrees that the proposed approach to developing NGV business includes barriers, such as the take or pay requirement, that may slow down the rate of market transformation from diesel fuel to natural gas. This concern has been considered and balanced with concerns with respect to potential stranded assets should the NGV market not be sustainable over the long term. TGI believes that the proposed approach is an appropriate balance recognizing the conservative nature of the regulated business with respect to risk.

TGI will assess the market adoption of NGVs through its continuous marketing efforts. In the event that market penetration is below projected levels and/or customer feedback indicates that the take or pay barrier is slowing market adoption, TGI may propose an alternative model for development of NGV markets. This could be done in the context of a future service agreement for which TGI seeks Commission approval.

11. Reference: Exhibit B-1, Page 24

Table 3-1: All Customers Benefit from Increased Throughput

Impact to Existing Natural Gas Customers: NGV Refuelling Service	2012	2015	2020	2025	2030
Forecast Revenue Requirement Reduction (Increase), $000's					
Reference Case	384	2,285	12,501	39,829	82,451
Low Growth	308	730	5,059	15,865	33,377
Plus Passenger	421	2,650	17,973	50,773	104,339
Approximate Annual Delivery Rate (Decrease) Increase, %					
Reference Case	-0.07%	-0.42%	-2.31%	-7.36%	-15.24%
Low Growth	-0.06%	-0.14%	-0.94%	-2.93%	-6.17%
Plus Passenger	-0.08%	-0.49%	-3.32%	-9.38%	-19.29%

11.1 As a comparison please provide the for each of the reference years the volume and rate impact of declining use per customer continuing at 1%, 2%, and 3% per year.

Response:

The following table demonstrates that within 8 years, comparing the reference case to an annual 1% decline in Residential customer use rate (cumulative decline of approximately 8%), the delivery rate benefits of the CNG and LNG Service throughput significantly offsets the delivery rate pressure of decreasing Residential customer use rates.

Impact to Existing Natural Gas Customers: Decline in TGI Lower Mainland Residential Customer Use Rates	2012	2015	2020	2025	2030
Forecast Revenue (Deficiency), $000's					
1% Annual Decline in Residential Use Rate	(2,245)	(8,848)	(19,419)	(29,472)	(39,032)
2% Annual Decline in Residential Use Rate	(4,491)	(17,431)	(37,330)	(55,317)	(71,576)
3% Annual Decline in Residential Use Rate	(6,736)	(25,756)	(53,838)	(77,952)	(98,660)
Approximate Annual Delivery Rate Increase, %					
1% Annual Decline in Residential Use Rate	0.42%	1.64%	3.59%	5.45%	7.21%
2% Annual Decline in Residential Use Rate	0.83%	3.22%	6.90%	10.22%	13.23%
3% Annual Decline in Residential Use Rate	1.25%	4.76%	9.95%	14.41%	18.24%
Annual Volume Impact (TJs)					
1% Annual Decline in Residential Use Rate	(686)	(2,702)	(5,929)	(8,999)	(11,918)
2% Annual Decline in Residential Use Rate	(1,371)	(5,323)	(11,399)	(16,891)	(21,855)
3% Annual Decline in Residential Use Rate	(2,057)	(7,865)	(16,439)	(23,802)	(30,125)

The impact of use per customer decline has been calculated using TGI Lower Mainland Residential customers (Rate Schedule 1), the current approved delivery rate of $3.275/GJ and assumes that the average number of customers remains constant throughout the analysis period.

12. Reference: Exhibit B-1, Page 33&34

basis would be cost effective for participating customers. Therefore, TGI may consider negotiating in future NGV agreements that Terasen Gas is entitled to any GHG emission reductions as a result of the provision of the proposed NGV service offerings or EEC incentives for NGVs. Therefore, if multiple projects qualify, TGI could undertake, on an aggregate basis, third party validation and verification and the establishment of accepted protocols for these projects. Treatment of any carbon credits resulting from TGI's proposed NGV service offering or EEC NGV initiatives has not been resolved at this time.

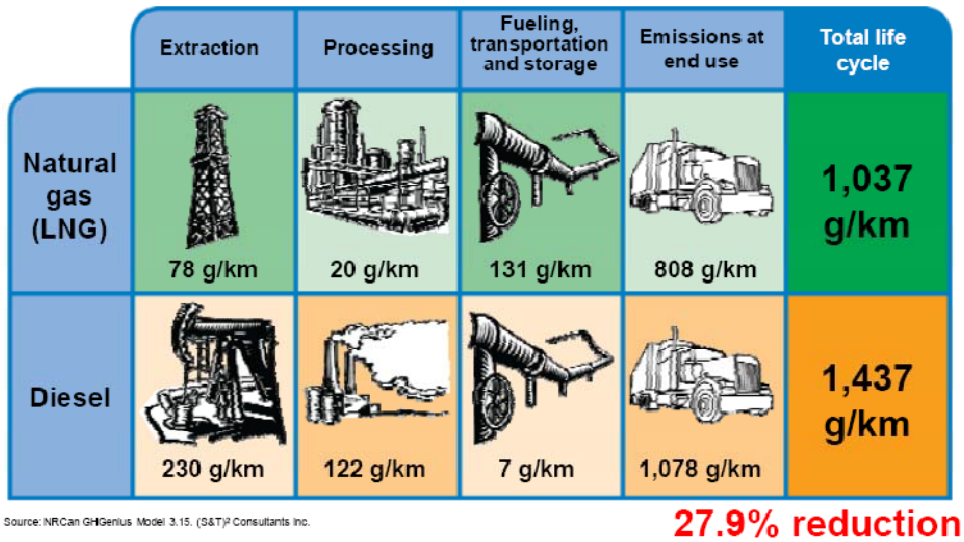
12.1 Why would not TGI offer as a service to the NGV customers that it will handle the process of monetizing the GHG credits when and wherever TGI finds it practical to do so and return the net benefit to the NGV customers to further encourage the adoption of this service and increase the benefits to other customers?

Response:

Please see the response to BCUC IRs 2.38.1 through 2.38.3 for a discussion of this issue.

13. Reference: Exhibit B-1, Page 43

Figure 3-7: Lifecycle GHG Benefit – Westport GX-Equipped Truck – BC 2010



Source: Natural Resources Canada - *GHGenius 3.18*

13.1 Does this lifecycle GHG benefit analysis take into account new technologies in any of the lifecycle steps? For instance the CEC believes that new advance vehicle designs are removing some of the difference between LNG and diesel. Can TGI please comment on the future technology perspective in regard to this information?

Response:

The GHG benefit analysis presented represents the current supply chain and the current state of engine technology.

TGI does not accept the premise that improvements in diesel engine technology are narrowing the gap in GHG emissions between diesel and LNG engines. An example is the addition of diesel particulate filters to clean up smoke emissions from diesel engines. These filters increase backpressure in the exhaust system which reduces overall engine efficiency and this leads to more GHG emissions. In addition these filters require periodic regeneration which requires diesel fuel consumption which adds to GHG emissions.

LNG and diesel engine technology as exemplified by the Westport Innovations GX engine, are now equivalent in terms of overall thermal efficiency of the engine. The engine platform that is used by Westport is the Cummins ISX 15 litre diesel engine. The only components that are changed are the fuel delivery system and the fuel injectors. Given that there is such a high degree of commonality in the engine itself, improvements in basic diesel engine combustion efficiency should also translate into improvements in the LNG version of the same engine. The LNG version of the engine, however, has the advantage that it creates far less combustion product emissions such as particulates, oxides of nitrogen and oxides of sulphur. Hence it has less need for post combustion after-treatment technologies which in general add parasitic load, decrease overall efficiency and create additional GHG emissions.

Efficiency improvements in other areas of overall vehicle design should benefit both diesel and NG vehicles. Examples of these would be battery based hybrid designs, hydraulic launch assist hybrid designs and improvements in vehicle aerodynamics.

14. Reference: Exhibit B-1, Page 55

3. The proposed fueling charge is reasonable and relevant for CNG and LNG Service customers.
    - Contract terms set to match the lifetime of the initial fleet of vehicles served by the station and the use of a predictable fuel charge achieves alignment with this principle.

14.1 What would the expected service charge be if TGI were to adopt a policy of determining the charge based on and initial fleet life and one turnover of the fleet (ie double the timeframe)?

Response:

If TGI were to adopt a policy of determining the charge based on the initial fleet life and one turnover of the fleet, the service charge would decrease. Using the example LNG Service scenario discussed on pages 12-14 of the Application, if the service charge is determined using a twenty year period rather than a ten year period, the charge decreases by approximately $0.05/GJ, from $5.14/GJ to $5.09/GJ. Terasen believes, however, that a contract term that is set to match the lifetime of the initial fleet of vehicles will normally be appropriate because it balances the TGI's desire for a longer term to minimize the unrecovered balance at the end of the contract period with the NGV customer's desire to avoid committing on a "take or pay" basis for long periods of time before it has had any experience with operating an NGV fleet.

14.2 Would longer term commitments from the CNG and LNG customers provide more benefit to the other customer classes in terms of total reduction in delivery rates based on the additional throughput?

Response:

Regardless of the length of the contract for CNG and LNG service customers, all non-bypass customers benefit from continued incremental throughput on the TGI delivery system when the fueling facility associated with the CNG or LNG dispensing service is in use.. This is because in most cases, regardless of the CNG and LNG dispensing service provider, TGI's delivery system will be required to transport the natural gas demand for the dispensing service. For example, if a CNG or LNG service customer has a ten year contract with TGI and chooses to purchase the assets at the end of the term and the customer continues to use the CNG or LNG fueling facility, all non-bypass customers will continue to experience the delivery rate benefits of the additional throughput. Although TGI no longer owns the fueling facility, non-bypass customers may continue to experience delivery rate benefits because the TGI delivery system will be used to transport the natural gas to the fueling facility, thereby maintaining the additional throughput on the TGI delivery system.

Where possible, TGI will encourage the customer to commit to as long a term as possible as it will further reduce the amount of unrecovered costs at the end of the initial term and thus reduce risk; however, longer contract terms may discourage potential CNG and LNG service customers from committing to service agreements in the first instance (which would prevent any benefits from accruing to customers at all).

15. Reference: Exhibit B-1, Page 70

8.4 Orders related to Cost Recovery

1. An order pursuant to sections 59-61 of the Act approving:
   a) Depreciation rates applicable to NGV refueling assets as identified in Section 4.6.3.2;
   b) A non-rate base deferral account attracting AFUDC to capture the NGV Fueling Service Application costs incurred in 2010 and 2011 and to recover these costs from all non-bypass customers by amortizing them through delivery rates commencing January 1, 2012 over a three year period.

15.1 Why was the 3 year amortization period selected?

Response:

The non-rate base deferral account requested in Section 8.4, 1(b) of the Application is intended to capture the costs associated with the CNG and LNG Service Application. These costs consist of legal fees, intervener and participant funding costs, Commission costs, public notification costs and miscellaneous facilities, stationary and supplies costs.

The amortization periods for deferral accounts that capture application costs range from 2 to 5 years and are largely dependent on the forecast costs of the application. TGI anticipates that the costs associated with this application will be in the range of $150,000 to $200,000 and therefore a three year amortization period is reasonable.

15.2 What is the anticipated amount for the deferral account?

Response:

Please refer to the response to CEC IR 2.15.1.

15.3 What is the expected impact on the delivery rates for this amortization charge?

Response:

Please refer to the response to CEC IR 2.15.1.

Assuming that the deferral account has an opening balance of $200,000 in 2012 and is amortized over a three year period, beginning January 1, 2012, the approximate increase to 2012 delivery rates from this deferral account and amortization charge is approximately 0.015%.

Attachment 1.1.1

TGI GT&C Comparison - Energy Demand (in Gigajoules)				
Rate Schedule 1	**Rate Schedule 2**	**Rate Schedule 3**	**Rate Schedule 5**	**CNG/LNG Service**
Residential Service	**Small Commercial Service**	**Large Commercial Service**	**General Firm Service**	**Natural Gas Vehicle Service**
Typical Consumption - LM	**Typical Consumption - LM**	**Typical Consumption - LM**	**Typical Consumption - LM**	**Waste Management Forecasted Consumption**
95 GJ	**300 GJ**	**2,800 GJ**	**9,700 GJ**	**21,140 GJ**
TGI GT&C - Sections 12.4	**TGI GT&C - Sections 12.4**	**TGI GT&C - Sections 12.4**	**TGI GT&C - Sections 12.4**	Not specified in the proposed GT&C Section 12B
12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	
(a) estimating the number of Customers to be served by the Main Extension;	(a) estimating the number of Customers to be served by the Main Extension;	(a) estimating the number of Customers to be served by the Main Extension;	(a) estimating the number of Customers to be served by the Main Extension;	
(b) establishing consumption estimates for each Customer;	(b) establishing consumption estimates for each Customer;	(b) establishing consumption estimates for each Customer;	(b) establishing consumption estimates for each Customer;	

TGI GT&C Comparison - Range of Size of Energy Demand (in Gigajoules)				
Rate Schedule 1	**Rate Schedule 2**	**Rate Schedule 3**	**Rate Schedule 5**	**CNG/LNG Service**
Residential Service	**Small Commercial Service**	**Large Commercial Service**	**General Firm Service**	**Natural Gas Vehicle Service**
Typical Consumption - LM	**Typical Consumption - LM**	**Typical Consumption - LM**	**Typical Consumption - LM**	**Waste Management Forecasted Consumption**
95 GJ	**300 GJ**	**2,800 GJ**	**9,700 GJ**	**21,140 GJ**
TGI GT&C - Sections 12.4	**TGI GT&C - Sections 12.4**	**TGI GT&C - Sections 12.4**	**TGI GT&C - Sections 12.4**	Not specified in the proposed GT&C Section 12B
12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	
(a) estimating the number of Customers to be served by the Main Extension;	(a) estimating the number of Customers to be served by the Main Extension;	(a) estimating the number of Customers to be served by the Main Extension;	(a) estimating the number of Customers to be served by the Main Extension;	
(b) establishing consumption estimates for each Customer;	(b) establishing consumption estimates for each Customer;	(b) establishing consumption estimates for each Customer;	(b) establishing consumption estimates for each Customer;	

Attachment 1.1.3

TGI GT&C Comparison - "Take or Pay" - "Minimum Demand"				
Rate Schedule 1	**Rate Schedule 2**	**Rate Schedule 3**	**Rate Schedule 5**	**CNG/LNG Service**
Residential Service	**Small Commercial Service**	**Large Commercial Service**	**General Firm Service**	**Natural Gas Vehicle Service**
Take or Pay - There is no "Take or Pay" provision in the TGI GT&C.	**Take or Pay -** There is no "Take or Pay" provision in the TGI GT&C.	**Take or Pay -** There is no "Take or Pay" provision in the TGI GT&C.	**Take or Pay -** There is no "Take or Pay" provision in the TGI GT&C.	**Section 12B.3 Cost of Service Recovery** - Customers will be charged a "take or pay" rate (i.e. minimum contract demand) under the Service Agreement that recovers the present value of the forecast cost of service associated with provision of CNG or LNG Service over the term of the Service Agreement, where the minimum contract demand is the forecast consumption based on the forecast number of vehicles serviced by the vehicle fueling station.
Minimum Charge per Month - The minimum charge per Month will be the aggregate of the Basic Charge, any charge under Option A and and the Franchise Fee Charge.	**Minimum Charge** per Month - The minimum charge per Month will be the aggregate of the Basic Charge and the Franchise Fee Charge.	**Minimum Charge** per Month - The minimum charge per Month will be the aggregate of the Basic Charge and the Franchise Fee Charge.	**Minimum Charge** per Month - The minimum charge per Month will be the aggregate of the Basic Charge, Demand Charges and the Franchise Fee Charge.	See above (i.e. minimum contract demand)

Attachment 1.1.4

TGI GT&C Comparison - Recovery of Cost over a Service Agreement Term				
Rate Schedule 1	**Rate Schedule 2**	**Rate Schedule 3**	**Rate Schedule 5**	**CNG/LNG Service**
Residential Service	**Small Commercial Service**	**Large Commercial Service**	**General Firm Service**	**Natural Gas Vehicle Service**
TGI GT&C - Sections 12.3 and 12.10	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 and 12. 4**
12.3 **Economic Test -** All applications to extend the Gas distribution system to one or more new Customers will be subject to an economic test approved by the British Columbia Utilities Commission. The economic test will be a discounted cash flow analysis of the projected revenue and costs associated with the Main Extension. The Main Extension will be deemed to be economic and will be constructed if the results of the economic test indicate a Profitability Index of 0.8 or greater for an individual main extension.	12.3 **Economic Test -** All applications to extend the Gas distribution system to one or more new Customers will be subject to an economic test approved by the British Columbia Utilities Commission. The economic test will be a discounted cash flow analysis of the projected revenue and costs associated with the Main Extension. The Main Extension will be deemed to be economic and will be constructed if the results of the economic test indicate a Profitability Index of 0.8 or greater for an individual main extension.	12.3 **Economic Test -** All applications to extend the Gas distribution system to one or more new Customers will be subject to an economic test approved by the British Columbia Utilities Commission. The economic test will be a discounted cash flow analysis of the projected revenue and costs associated with the Main Extension. The Main Extension will be deemed to be economic and will be constructed if the results of the economic test indicate a Profitability Index of 0.8 or greater for an individual main extension.	12.3 **Economic Test -** All applications to extend the Gas distribution system to one or more new Customers will be subject to an economic test approved by the British Columbia Utilities Commission. The economic test will be a discounted cash flow analysis of the projected revenue and costs associated with the Main Extension. The Main Extension will be deemed to be economic and will be constructed if the results of the economic test indicate a Profitability Index of 0.8 or greater for an individual main extension.	Section 12B.3 **Cost of Service Recovery** - Customers will be charged a "take or pay" rate (i.e. minimum contract demand) under the Service Agreement that recovers the present value of the forecast cost of service associated with provision of CNG or LNG Service over the term of the Service Agreement, where the minimum contract demand is the forecast consumption based on the forecast number of vehicles serviced by the vehicle fueling station.
12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	12.4 **Revenue -** The projected revenue to be used in the economic test will be determined by Terasen Gas by	Section 12.5 **Costs -** The total costs to be used in determining the forecast cost of service to be recovered from the Customer under the Service Agreement include, without limitation
(a) estimating the number of Customers to be served by the Main Extension;	(a) estimating the number of Customers to be served by the Main Extension;	(a) estimating the number of Customers to be served by the Main Extension;	(a) estimating the number of Customers to be served by the Main Extension;	(a) the capital investment, including any associated labour, material, capitalized overhead and other costs necessary to serve the Customer, less any contributions in aid of construction by the Customer or third parties, grants, tax credits or non-fiancial factors offsetting the full costs that are deemed to be acceptable by the British Columbia Utilities Commission;
(b) establishing consumption estimates for each Customer;	(b) establishing consumption estimates for each Customer;	(b) establishing consumption estimates for each Customer;	(b) establishing consumption estimates for each Customer;	© depreciation expense related to the capital assets associated with the vehicle fueling station; and
© projecting when the Customer will be connected to the Main Extension; and	© projecting when the Customer will be connected to the Main Extension; and	© projecting when the Customer will be connected to the Main Extension; and	© projecting when the Customer will be connected to the Main Extension; and	(d) the incremental operating and maintenance expenses necessary to serve the Customers.
(d) applying the appropriate revenue margins for each Customer's consumption.	(d) applying the appropriate revenue margins for each Customer's consumption.	(d) applying the appropriate revenue margins for each Customer's consumption.	(d) applying the appropriate revenue margins for each Customer's consumption.	In addition to the costs identified, the cost of service recovery will include applicable property and income taxes and the appropriate return on rate base as approved by the British Columbia Utilities Commission.
The revenue projection will take into consideration the estimated number and type of Gas appliances and the effect variations in weather variations in weather conditions throughout the applicable Service Area have on consumption. Customers who intend to install both high efficiency gas fired space (namely an Energy Star rated furnace or boiler) and water heating appliances (tankless water heaters, or water heaters with efficiency rating of 78 percent or greater), will receive a credit of 10 percent of the volume otherwise used for both appliances. Customers who intend to install both high effiency gas fired space and water heating appliances and attain a minimum of LEED^{TM} (Leadership in Energy and Environmental Design) General Certification will receive a credit of 15 percent of the volume otherwise used for both. In addition, the projected revenue from Application Fees will be included. Only those Customers expected to connect to the Main Extension within 5 Years of its completion will be considered.	The revenue projection will take into consideration the estimated number and type of Gas appliances and the effect variations in weather variations in weather conditions throughout the applicable Service Area have on consumption. Customers who intend to install both high efficiency gas fired space (namely an Energy Star rated furnace or boiler) and water heating appliances (tankless water heaters, or water heaters with efficiency rating of 78 percent or greater), will receive a credit of 10 percent of the volume otherwise used for both appliances. Customers who intend to install both high effiency gas fired space and water heating appliances and attain a minimum of LEED^{TM} (Leadership in Energy and Environmental Design) General Certification will receive a credit of 15 percent of the volume otherwise used for both. In addition, the projected revenue from Application Fees will be included. Only those Customers expected to connect to the Main Extension within 5 Years of its completion will be considered.	The revenue projection will take into consideration the estimated number and type of Gas appliances and the effect variations in weather variations in weather conditions throughout the applicable Service Area have on consumption. Customers who intend to install both high efficiency gas fired space (namely an Energy Star rated furnace or boiler) and water heating appliances (tankless water heaters, or water heaters with efficiency rating of 78 percent or greater), will receive a credit of 10 percent of the volume otherwise used for both appliances. Customers who intend to install both high effiency gas fired space and water heating appliances and attain a minimum of LEED^{TM} (Leadership in Energy and Environmental Design) General Certification will receive a credit of 15 percent of the volume otherwise used for both. In addition, the projected revenue from Application Fees will be included. Only those Customers expected to connect to the Main Extension within 5 Years of its completion will be considered.	The revenue projection will take into consideration the estimated number and type of Gas appliances and the effect variations in weather variations in weather conditions throughout the applicable Service Area have on consumption. Customers who intend to install both high efficiency gas fired space (namely an Energy Star rated furnace or boiler) and water heating appliances (tankless water heaters, or water heaters with efficiency rating of 78 percent or greater), will receive a credit of 10 percent of the volume otherwise used for both appliances. Customers who intend to install both high effiency gas fired space and water heating appliances and attain a minimum of LEED^{TM} (Leadership in Energy and Environmental Design) General Certification will receive a credit of 15 percent of the volume otherwise used for both. In addition, the projected revenue from Application Fees will be included. Only those Customers expected to connect to the Main Extension within 5 Years of its completion will be considered.	

TGI GT&C Comparison - Recovery of Cost over a Service Agreement Term				
Rate Schedule 1	**Rate Schedule 2**	**Rate Schedule 3**	**Rate Schedule 5**	**CNG/LNG Service**
Residential Service	**Small Commercial Service**	**Large Commercial Service**	**General Firm Service**	**Natural Gas Vehicle Service**
TGI GT&C - Sections 12.3 and 12.10	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 and 12. 4**
12.5 **Costs** - The total costs to be used in the economic test include, without limitation	12.5 **Costs** - The total costs to be used in the economic test include, without limitation	12.5 **Costs** - The total costs to be used in the economic test include, without limitation	12.5 **Costs** - The total costs to be used in the economic test include, without limitation	
(a) the full labour, material, and other costs necessary to serve the new Customers including Mains, Service Lines, Meter Sets and any related facilities such as pressure reducing stations and pipelines;	(a) the full labour, material, and other costs necessary to serve the new Customers including Mains, Service Lines, Meter Sets and any related facilities such as pressure reducing stations and pipelines;	(a) the full labour, material, and other costs necessary to serve the new Customers including Mains, Service Lines, Meter Sets and any related facilities such as pressure reducing stations and pipelines;	(a) the full labour, material, and other costs necessary to serve the new Customers including Mains, Service Lines, Meter Sets and any related facilities such as pressure reducing stations and pipelines;	
(b) the appropriate allocation of Terasen Gas' overheads associated with the construction of the Main Extension;	(b) the appropriate allocation of Terasen Gas' overheads associated with the construction of the Main Extension;	(b) the appropriate allocation of Terasen Gas' overheads associated with the construction of the Main Extension;	(b) the appropriate allocation of Terasen Gas' overheads associated with the construction of the Main Extension;	
© the incremental operating and maintenance expenses necessary to serve the Customers; and	© the incremental operating and maintenance expenses necessary to serve the Customers; and	© the incremental operating and maintenance expenses necessary to serve the Customers; and	© the incremental operating and maintenance expenses necessary to serve the Customers; and	
(d) an allocation of system improvement costs.	(d) an allocation of system improvement costs.	(d) an allocation of system improvement costs.	(d) an allocation of system improvement costs.	
In addition to the costs identified, the economic test will include applicable taxes and the appropriate return on investment as approved by the British Columbia Utilities Commission.	In addition to the costs identified, the economic test will include applicable taxes and the appropriate return on investment as approved by the British Columbia Utilities Commission.	In addition to the costs identified, the economic test will include applicable taxes and the appropriate return on investment as approved by the British Columbia Utilities Commission.	In addition to the costs identified, the economic test will include applicable taxes and the appropriate return on investment as approved by the British Columbia Utilities Commission.	
In cases where a larger Gas distribution Main is installed to satisfy future requirements, the difference in cost between the larger Main and the smaller Main necessary to serve the Customers supporting the application may be eliminated from the economic test.	In cases where a larger Gas distribution Main is installed to satisfy future requirements, the difference in cost between the larger Main and the smaller Main necessary to serve the Customers supporting the application may be eliminated from the economic test.	In cases where a larger Gas distribution Main is installed to satisfy future requirements, the difference in cost between the larger Main and the smaller Main necessary to serve the Customers supporting the application may be eliminated from the economic test.	In cases where a larger Gas distribution Main is installed to satisfy future requirements, the difference in cost between the larger Main and the smaller Main necessary to serve the Customers supporting the application may be eliminated from the economic test.	
12.6 **Contributions in Aid of Construction -** If the economic test results indicate a Profitability Index of less than 0.8, the Main Extension may proceed provided that the shortfall in revenue is eliminated by contributions in aid of construction by the Customers to be served by Main Extension, their agents or other parties, or if there are non-financial factors offsetting the revenue shortfall that are deemed to be acceptable by the British Columbia Utilities Commission.	12.6 **Contributions in Aid of Construction -** If the economic test results indicate a Profitability Index of less than 0.8, the Main Extension may proceed provided that the shortfall in revenue is eliminated by contributions in aid of construction by the Customers to be served by Main Extension, their agents or other parties, or if there are non-financial factors offsetting the revenue shortfall that are deemed to be acceptable by the British Columbia Utilities Commission.	12.6 **Contributions in Aid of Construction -** If the economic test results indicate a Profitability Index of less than 0.8, the Main Extension may proceed provided that the shortfall in revenue is eliminated by contributions in aid of construction by the Customers to be served by Main Extension, their agents or other parties, or if there are non-financial factors offsetting the revenue shortfall that are deemed to be acceptable by the British Columbia Utilities Commission.	12.6 **Contributions in Aid of Construction -** If the economic test results indicate a Profitability Index of less than 0.8, the Main Extension may proceed provided that the shortfall in revenue is eliminated by contributions in aid of construction by the Customers to be served by Main Extension, their agents or other parties, or if there are non-financial factors offsetting the revenue shortfall that are deemed to be acceptable by the British Columbia Utilities Commission.	
Terasen Gas may finance the contributions in aid of construction for Customers. Contributions of less than $100 per Customer may be waived by Terasen Gas.	Terasen Gas may finance the contributions in aid of construction for Customers. Contributions of less than $100 per Customer may be waived by Terasen Gas.	Terasen Gas may finance the contributions in aid of construction for Customers. Contributions of less than $100 per Customer may be waived by Terasen Gas.	Terasen Gas may finance the contributions in aid of construction for Customers. Contributions of less than $100 per Customer may be waived by Terasen Gas.	

TGI GT&C Comparison - Recovery of Cost over a Service Agreement Term				
Rate Schedule 1	**Rate Schedule 2**	**Rate Schedule 3**	**Rate Schedule 5**	**CNG/LNG Service**
Residential Service	**Small Commercial Service**	**Large Commercial Service**	**General Firm Service**	**Natural Gas Vehicle Service**
TGI GT&C - Sections 12.3 and 12.10	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 and 12. 4**
12.7 **Contributions Paid by Connecting Customers -** The total required contribution will be paid by the Customers connecting at the time the Main Extension is built. Terasen Gas will collect contributions from all Customers connnecting during the first five Years after the Main Extension is built. As additional contributions are received from Customers connecting to the main extension, partial refunds will be made to those Customers who had previously made contributions. At the end of the fifth Year, all Customers will have paid an equal contribution, after reconciliation and refunds.	12.7 **Contributions Paid by Connecting Customers -** The total required contribution will be paid by the Customers connecting at the time the Main Extension is built. Terasen Gas will collect contributions from all Customers connnecting during the first five Years after the Main Extension is built. As additional contributions are received from Customers connecting to the main extension, partial refunds will be made to those Customers who had previously made contributions. At the end of the fifth Year, all Customers will have paid an equal contribution, after reconciliation and refunds.	12.7 **Contributions Paid by Connecting Customers -** The total required contribution will be paid by the Customers connecting at the time the Main Extension is built. Terasen Gas will collect contributions from all Customers connnecting during the first five Years after the Main Extension is built. As additional contributions are received from Customers connecting to the main extension, partial refunds will be made to those Customers who had previously made contributions. At the end of the fifth Year, all Customers will have paid an equal contribution, after reconciliation and refunds.	12.7 **Contributions Paid by Connecting Customers -** The total required contribution will be paid by the Customers connecting at the time the Main Extension is built. Terasen Gas will collect contributions from all Customers connnecting during the first five Years after the Main Extension is built. As additional contributions are received from Customers connecting to the main extension, partial refunds will be made to those Customers who had previously made contributions. At the end of the fifth Year, all Customers will have paid an equal contribution, after reconciliation and refunds.	
For larger Main Extension projects, Terasen Gas may use the Main Extension Contribution Agreement for initial contributions. Customers will be billed the contribution amount after the Main Extension is built.	For larger Main Extension projects, Terasen Gas may use the Main Extension Contribution Agreement for initial contributions. Customers will be billed the contribution amount after the Main Extension is built.	For larger Main Extension projects, Terasen Gas may use the Main Extension Contribution Agreement for initial contributions. Customers will be billed the contribution amount after the Main Extension is built.	For larger Main Extension projects, Terasen Gas may use the Main Extension Contribution Agreement for initial contributions. Customers will be billed the contribution amount after the Main Extension is built.	
12.8 **Refund of Contributions -** A review will be performed annually, or more often at the Company's discretion, to determine if a refund is payable to all Customers who have contributed to the extension.	12.8 **Refund of Contributions -** A review will be performed annually, or more often at the Company's discretion, to determine if a refund is payable to all Customers who have contributed to the extension.	12.8 **Refund of Contributions -** A review will be performed annually, or more often at the Company's discretion, to determine if a refund is payable to all Customers who have contributed to the extension.	12.8 **Refund of Contributions -** A review will be performed annually, or more often at the Company's discretion, to determine if a refund is payable to all Customers who have contributed to the extension.	
If the review of the contributions indicates that refunds are due,	If the review of the contributions indicates that refunds are due,	If the review of the contributions indicates that refunds are due,	If the review of the contributions indicates that refunds are due,	
(a) individual refunds greater than $100 will be paid at the time of the review:	(a) individual refunds greater than $100 will be paid at the time of the review:	(a) individual refunds greater than $100 will be paid at the time of the review:	(a) individual refunds greater than $100 will be paid at the time of the review:	
(b) individual refunds less than $100 will be held until a subsequent review increases the refund payable over $100, or until the end of the five-Year contributory period;	(b) individual refunds less than $100 will be held until a subsequent review increases the refund payable over $100, or until the end of the five-Year contributory period;	(b) individual refunds less than $100 will be held until a subsequent review increases the refund payable over $100, or until the end of the five-Year contributory period;	(b) individual refunds less than $100 will be held until a subsequent review increases the refund payable over $100, or until the end of the five-Year contributory period;	
© no interest will be paid on contributions that are subsequently refunded;	© no interest will be paid on contributions that are subsequently refunded;	© no interest will be paid on contributions that are subsequently refunded;	© no interest will be paid on contributions that are subsequently refunded;	
(d) the total amount of refunds issued will not be greater than the original amount of the contribution; and	(d) the total amount of refunds issued will not be greater than the original amount of the contribution; and	(d) the total amount of refunds issued will not be greater than the original amount of the contribution; and	(d) the total amount of refunds issued will not be greater than the original amount of the contribution; and	
(e) if, after making all reasonable efforts, Terasen Gas is unable to locate a Customer who is eligible for a refund, the Customer will be deemed to have forfeited the contribution refund and the refund will be credited to the other Customers who contributed towards the Main Extension.	(e) if, after making all reasonable efforts, Terasen Gas is unable to locate a Customer who is eligible for a refund, the Customer will be deemed to have forfeited the contribution refund and the refund will be credited to the other Customers who contributed towards the Main Extension.	(e) if, after making all reasonable efforts, Terasen Gas is unable to locate a Customer who is eligible for a refund, the Customer will be deemed to have forfeited the contribution refund and the refund will be credited to the other Customers who contributed towards the Main Extension.	(e) if, after making all reasonable efforts, Terasen Gas is unable to locate a Customer who is eligible for a refund, the Customer will be deemed to have forfeited the contribution refund and the refund will be credited to the other Customers who contributed towards the Main Extension.	

TGI GT&C Comparison - Recovery of Cost over a Service Agreement Term				
Rate Schedule 1	**Rate Schedule 2**	**Rate Schedule 3**	**Rate Schedule 5**	**CNG/LNG Service**
Residential Service	**Small Commercial Service**	**Large Commercial Service**	**General Firm Service**	**Natural Gas Vehicle Service**
TGI GT&C - Sections 12.3 and 12.10	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 -12.10**	**TGI GT&C - Sections 12.3 and 12. 4**
12.9 **Extensions to Contributory Extensions -** When a Main Extension is attached to an existing contributory Main Extension within the five-Year contributory period for the existing extension, the new extension will be evaluated using the Main Extension Test to determine whether a contribution is required. A prorated portion of the total contribution for the existing contributory extension will be assigned to the new extension on the basis of expected use, point of connection, and other factors. Any contributions toward the cost of the existing extension from Customers on the new extension will be used to provide partial refunds to the contributing Customers ont he existing extension. The total refunds issued will not exceed the total amount of the contributions paid by Customers on the existing extension. 12.10 **Security -** In those situations where the financial viability of a Main Extension is uncertain, Terasen Gas may require a security deposit in the form of cash or an equivalent form of security acceptable to Terasen Gas.	12.9 **Extensions to Contributory Extensions -** When a Main Extension is attached to an existing contributory Main Extension within the five-Year contributory period for the existing extension, the new extension will be evaluated using the Main Extension Test to determine whether a contribution is required. A prorated portion of the total contribution for the existing contributory extension will be assigned to the new extension on the basis of expected use, point of connection, and other factors. Any contributions toward the cost of the existing extension from Customers on the new extension will be used to provide partial refunds to the contributing Customers ont he existing extension. The total refunds issued will not exceed the total amount of the contributions paid by Customers on the existing extension. 12.10 **Security -** In those situations where the financial viability of a Main Extension is uncertain, Terasen Gas may require a security deposit in the form of cash or an equivalent form of security acceptable to Terasen Gas.	12.9 **Extensions to Contributory Extensions -** When a Main Extension is attached to an existing contributory Main Extension within the five-Year contributory period for the existing extension, the new extension will be evaluated using the Main Extension Test to determine whether a contribution is required. A prorated portion of the total contribution for the existing contributory extension will be assigned to the new extension on the basis of expected use, point of connection, and other factors. Any contributions toward the cost of the existing extension from Customers on the new extension will be used to provide partial refunds to the contributing Customers ont he existing extension. The total refunds issued will not exceed the total amount of the contributions paid by Customers on the existing extension. 12.10 **Security -** In those situations where the financial viability of a Main Extension is uncertain, Terasen Gas may require a security deposit in the form of cash or an equivalent form of security acceptable to Terasen Gas.	12.9 **Extensions to Contributory Extensions -** When a Main Extension is attached to an existing contributory Main Extension within the five-Year contributory period for the existing extension, the new extension will be evaluated using the Main Extension Test to determine whether a contribution is required. A prorated portion of the total contribution for the existing contributory extension will be assigned to the new extension on the basis of expected use, point of connection, and other factors. Any contributions toward the cost of the existing extension from Customers on the new extension will be used to provide partial refunds to the contributing Customers ont he existing extension. The total refunds issued will not exceed the total amount of the contributions paid by Customers on the existing extension. 12.10 **Security -** In those situations where the financial viability of a Main Extension is uncertain, Terasen Gas may require a security deposit in the form of cash or an equivalent form of security acceptable to Terasen Gas.	

Attachment 1.1.5

TGI GT&C Comparison - Location of Facilities on Customer's Property to Deliver Fuel				
Rate Schedule 1	**Rate Schedule 2**	**Rate Schedule 3**	**Rate Schedule 5**	**CNG/LNG Service**
Residential Service	**Small Commercial Service**	**Large Commercial Service**	**General Firm Service**	**Natural Gas Vehicle Service**
There is no similar section in TGI's current GT&C	**There is no similar section in TGI's current GT&C**	**There is no similar section in TGI's current GT&C**	**There is no similar section in TGI's current GT&C**	**TGI Proposed GT&C -Section 12B Appendix B**
				Section 12B.1 **Compression and Dispensing Service for Compressed Natural Gas (CNG) Fueling and Fuel Storage and Dispensing Service for Liquefied Natural Gas (LNG) Fueling -** Terasen Gas will make extensions to the Terasen Gas System and provide CNG and LNG Services to vehicles in accordance with the provisions of this section.