



June 19, 2006

British Columbia Utilities Commission  
6<sup>th</sup> Floor, 900 Howe Street  
Vancouver, B.C. V6Z 2N3

Attention: Mr. R.J. Pellatt, Commission Secretary

Dear Sir:

**Re: Terasen Gas Inc. ("Terasen Gas")  
Application for a Certificate of Public Convenience and Necessity  
Replacement and Upgrading of the Vancouver Low-Pressure Gas Distribution  
System to Distribution Pressure  
British Columbia Utilities Commission ("BCUC" or the "Commission")  
Project # 3698423**

**Terasen Gas Written Comments**

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In accordance with BCUC Order No. G-57-06 which established the regulatory timetable in the above noted proceeding and the late submission of BCUC Information Request ("IR") No. 2, Commission staff agreed that Terasen Gas should file these written comments subsequent to the filing and entering into evidence of the responses to BCUC IR No. 2.

Therefore, attached hereto Terasen Gas respectfully submits the aforementioned written comments.

Twenty hard copies of the attached will be sent to the Commission office by Tuesday, June 20, 2006

The full submission including all appendices will be available on the Terasen Gas website by Tuesday, June 20, 2006 at the following location:

<http://www.terasengas.com/Publications/Regulatory/Submissions/LowerMainlandInterior/default.htm>

If there are any questions regarding this submission, please contact Mr. Tom Loski, Director, Regulatory Affairs at (604) 592-7464.

Yours very truly,

**TERASEN GAS INC.**

*Original signed by: Tom Loski*

**For:** Scott A. Thomson  
Attachment

**Scott A. Thomson**  
VP, Finance & Regulatory Affairs and  
Chief Financial Officer

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**BRITISH COLUMBIA UTILITIES COMMISSION**

**IN THE MATTER OF the *Utilities Commission Act*,  
R.S.B.C. 1996, Chapter 473 (the “*Act*”)**

**and**

**An Application by Terasen Gas Inc.**

**for Approval of a Certificate of Public Convenience and Necessity  
for the Replacement and Upgrading of the Low-Pressure Gas Distribution System**

**SUBMISSION OF  
TERASEN GAS INC.**

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**A. INTRODUCTION**

1. This submission of written comments made by Terasen Gas Inc. (“Terasen Gas” or the “Company”) to the British Columbia Utilities Commission (the “Commission” or “BCUC”) relates to the Certificate of Public Convenience and Necessity (“CPCN”) applied for by Terasen Gas to convert the heavily corroded Vancouver Low-Pressure steel (“LP”) natural gas distribution system (“LP System”) to a polyethylene (“PE”) distribution pressure (“DP”) natural gas system (the “Project”), filed under cover letter dated May 11, 2006, and as per Commission Order No. G-57-06 and the Regulatory Timetable attached.

2. To ensure alignment with stakeholder and industry integrity management expectations, as a prudent operator, Terasen Gas must be proactive to ensure public safety. The Vancouver LP System is currently one of two remaining integrity related concerns in the Lower Mainland. Terasen Gas recommends that the LP System be upgraded to PE piping, and to DP, as quickly as possible.

3. Leak analyses completed ten years ago indicated that the condition of the steel LP system did not warrant an immediate response in terms of total replacement. The “piece meal” approach was continued and was deemed sufficient by operational personnel monitoring the system. However, recent analyses indicates that the frequency of leaks from the unprotected, heavily corroded LP system in the City of Vancouver is 19 times greater than that of nearby cathodically protected piping. While there is no definitive cause that can be proven, it is Terasen Gas’ opinion that the past two decades of high rainfalls and above average temperatures may well have contributed to increased corrosion and hence frequency of leaks. Terasen Gas believes that this increasing trend will continue, and has thus presented this information to the Commission.

4. Cathodic protection of buried steel gas piping is a cornerstone of a system integrity management plan and is required by CSA Standard Z662, Oil & Gas Pipeline Systems, and thus by the Gas Safety Regulation of British Columbia. CSA Standard Z662 requires that if cathodic protection can not be effectively applied, as in the case of the LP system, the operator must undertake other remedial measures. As it is not possible to effectively apply corrosion control to the buried steel LP system, leaks will continue to occur, likely at an increasing frequency due to the nature of corrosion of steel pipe, and until Terasen Gas undertakes complete replacement of the LP system the risk of significant consequences from an undetected leak remain.

5. The threat posed to the integrity of the 95 km main, 7100 service LP System resulting from ground disturbance in the event of an earthquake is unacceptable to Terasen Gas. Vancouver is located in a seismically active region, and the Pacific Coast is the most earthquake-prone region of Canada. Crustal-type earthquakes such as the Seattle earthquake of 2001, with magnitudes in the range of 6 to 7, typically occur every 30-40 years in the Pacific Northwest. These earthquakes tend to be localized; however, experts predict significant damage to older infrastructure of various types. Terasen Gas believes that based on the evidence of damage induced by excavation related movement, that the heavily corroded LP system would fail completely should a modest earthquake occur. Furthermore, larger subduction earthquakes, originating West of Vancouver Island, may reach magnitudes of 8 or

higher. This type of earthquake occurs less frequently, but has the potential to cause massive damage and disruption throughout the entire region (Washington State Department of Natural Resources).

6. Terasen Gas has evaluated the financial consequence within the context of the seismic risk inherent in the management of the LP gas assets. As the probability of a significant seismic event is high, the financial risk mitigated by the completion of this project relates to the avoidance of emergency response system replacement costs in the event of an earthquake, the avoidance of capital upgrade expenses with respect to the LP station upgrades, and the loss of the volume-discounted contractual arrangement that has been offered to complete this work.

7. As described in the CPCN, the approximate cost of complete replacement under an emergency response scenario would be in the range of \$32 to \$43 million dollars, a potential expenditure that Terasen Gas considers unacceptable.

8. If Terasen Gas continues to replace the LP system in a protracted manner, as opposed to the three-year timeframe set out in the application, system upgrades will be designed in a "piecemeal" manner, resulting in higher overall system improvement costs. Furthermore, capital upgrades to a portion of the 24 stations in this system will be approximately \$720,000 to \$1.68 million dollars; all of which will be wasted investment of capital, and not the approach that Terasen Gas considers prudent.

9. The consequence of a delay in the awarding of a CPCN ranges from \$240,000 to \$300,000 additional costs due to contract extras that will be claimed by the contractor to complete the LP work by the project completion date to \$1.2 million due to complete termination of the contract negotiation by the contractor and the loss of the secure contractor resource.

10. Furthermore, increased routine construction activity inherent in current City of Vancouver infrastructure upgrades, and in ongoing residential/commercial construction, reflects additional ongoing risk to the LP System.

11. Hence, Terasen Gas wishes to replace aging gas infrastructure prudently, in order to ensure natural gas is safely delivered to its customers; the optimal state of preparedness being to eliminate this known risk from our distribution system as quickly as possible. Terasen Gas wishes to protect its gas facilities from seismic and/or excavation related damage in order to protect the public.

## **B. PUBLIC SAFETY**

12. The evidence before the Commission demonstrates that the upgrade of the LP System to a more robust PE DP system will result in a much greater level of system integrity, and public safety. The condition of the LP System has resulted in the frequency of leaks within the LP system being 19 times greater than that of cathodically protected piping.

13. In the event of broken or leaking LP piping, gas is released silently. LP gas escaping from broken piping does not have enough force to displace the soil above it and draw attention. Escaping LP gas is able to spread out much further under and through typical street infrastructure such as roads, sidewalks, driveways, and storm lines and possibly into buildings before detection. In contrast, broken or leaking DP piping will displace soil above, and thus, is more visible and audible, resulting in it being easily detectable by the general public and by employees during leak pinpointing.

14. The replacement of the poor condition steel LP System with a high quality PE DP system will accommodate third party excavation and construction activity, and any required emergency response by Terasen Gas will be completed in a more routine manner instead of the more specialized approach now required. Terasen Gas will no longer have to select specific emergency response personnel or utilize obsolete tools and equipment to respond to system damage. Emergency response personnel will be dispatched from Terasen Gas' routine on-call list.

### **C. SERVICE DISRUPTION**

15. 24 stations feed the interconnected LP system. The LP system requires this many feeds to operate on a regular basis as each station supports the others. If a seismic event were to occur, it is anticipated that significant LP main and service breakages and leaks will occur, and all of the stations will start to flow more gas to meet the requirements within the LP system. This will take gas supply from the adjacent DP mains areas, possibly lowering the pressure to an unacceptable level depending on the time of year, i.e. home heating requirements. LP system operation would therefore impede the performance of the adjacent DP system, inducing operational difficulty and service disruption risk.

16. The replacement of the LP System will result in a significant reduction in the number of service delivery problems and resource requirements due to water getting into the system. Terasen Gas has spent considerable time pumping water out of sections of the system and relighting customers who lose service due to low system pressure or water that makes its way into the system. This activity will not be required on the PE DP system.

17. Water main breaks often result in damage to the LP system. Each LP failure invariably affects a number of customers, both residential and commercial, whose gas service is interrupted. As a result, inconvenient re-lights must be coordinated between Terasen Gas and the customers affected.

### **D. SYSTEM INTEGRITY CONCERNS**

18. The 1994 seismic risk assessment of Lower Mainland facilities, completed by EQE International of Oakland, California, prioritized the seismic concerns on the Transmission and IP system, which have systematically been addressed by Terasen Gas. The LP system is one of two outstanding concerns in Terasen Gas' Lower Mainland distribution system, and as such, Terasen Gas feels that this system consisting of seismically vulnerable LP piping should be eliminated rapidly from the distribution system and upgraded to a more robust PE natural gas



distribution system. The completion of this work would thus align with the prudent integrity management profile of the utility.

19. The LP system in the Marina District of San Francisco was replaced within one month, at a cost of US \$17 million. Fifty-one hundred customers were affected (Practical Lessons from the Loma Prieta Earthquake (1994), Commission on Engineering and Technical Systems). Based on a cost of borrowing funds of 6%, the estimated cost to undertake this Project today, would be approximately US \$45 million, although this representative figure may not be accurate it is directionally indicative of the potential for significantly higher cost. As of April 2006, PG&E had approximately 400 km of LP pipe remaining in their system, as reported by PG&E LP Program Manager. Terasen Gas understands that PG&E plans to replace all LP pipe in their service territory, primarily by the insertion method, by 2014.

20. The Terasen Gas System Integrity Department review of the frequency of leaks occurring within the LP system found that over the last 6 years, the frequency of detected leaks from unprotected LP piping is 19 times greater than that of cathodically protected piping. Terasen Gas believes that this increasing trend with respect to leak frequency will continue in the same accelerated manner based on the analysis performed on the leak data.

21. The majority of leaks result from deterioration due to corrosion, the balance resulting from fitting and joint degradation, ground disturbance, and third party damage. It should be noted that the latter two failure categories exacerbate the acceleration of pipe degradation noted in the other two categories. Third party damage has an impact on the integrity of the fittings and joints, while ground disturbance induces greater levels of oxygen and/or moisture into this fragile pipe, accelerating corrosion rates.

22. Aligned with system integrity concerns, are upgrading, essentially replacement, of the 24 LP stations in order to address current Occupational Health and Safety Regulations and system capacity requirements.

## **E. PROJECT EXECUTION**

23. Terasen Gas is of the opinion that the entire LP System should be replaced, as it is all equally prone to breakage or leaks. Terasen Gas believes it is important that the LP replacement work be carried out as soon as possible to ensure that the integrity of the system is not compromised in the event of a moderate to significant seismic event.

24. Due to Terasen Gas labour resource levels and the requirement to provide emergency response across all regions, Terasen Gas is unable to assign sufficient Terasen Gas resources to complete the work, therefore, contractor resources will be necessary.

25. During the first quarter of 2006 Terasen Gas realized that with the upcoming May 1, 2006 expiry of the Company's DP Mains and Services Contract, there might be a cost-savings advantage to including the LP work in with the new contract. Following the receipt of positive tenders and confirmation that there was clear benefit to include the LP work in the Mains and Services Contract, Terasen Gas proceeded with completing and submitting the Application.

26. Utilizing dedicated contractor resources ensures higher productivity as the contractor will not be faced with the interruptions that arise when emergencies require Terasen Gas LP crews to respond. The Company estimates that the contractor rates are approximately 15% less than company rates because of these efficiencies. This reduces the over-all cost of the Project between 10% and 15%.

27. The lower contractor rates, i.e. work volume discounts, will apply when the full volume of work is offered over the three-year period. The "discounts" are essentially a reduction in typical unit costs due to the volume of work being guaranteed to the contractor. The work volume discounts will not apply if all of the work volume is not released to the contractor.

28. If the work cannot be undertaken as proposed, then the proposed contract pricing and inherent volume discount is at risk. The current contract was valid until June 14, 2006. The Company has been informed that the contractor will consider a 30 to 60 day extension to complete the proposed contract; however, it is unlikely that the contractor will hold their pricing beyond 60 days. Thus, there is a risk that Terasen Gas will have to go to market for an

alternate service provider once again, in order to obtain new bids, which will have an additional impact on the total Project cost. Potential escalating costs and scarce supply of qualified trades persons are a concern as the 2010 construction window approaches. Terasen Gas may not be able to secure the same terms and the potential impact is an increase in cost of approximately \$1.2 million, as discussed in paragraph 7.

29. A further risk to cost and execution that is induced in extending the duration of this Project is the loss of a secured contractor resource beyond the currently negotiated four-year term of the Mains and Service Contract in a time when these resources are extremely scarce in our province.

#### **F. STAKEHOLDER SUPPORT**

30. The City of Vancouver (the "City") and the British Columbia Safety Authority have both provided letters to indicate support for this project, having stated that this project is in the public interest, and especially in the interest of the Citizens of Vancouver. If an earthquake were to occur in the period leading up to, and/or during the Olympics, the residents of this area of Vancouver would face significant hardships due to a complete replacement effort that would thereupon be required.

31. Per discussions with the City's Utility Management Branch, a significant amount of concurrent construction related activity will be embarked upon in preparation for the 2010 Olympics throughout the City of Vancouver. Accelerated excavation activity in and around the vulnerable LP piping can exacerbate leakage in this system; rather than replacing this pipe as its integrity is continually challenged by excavation activity, Terasen Gas feels the entire system must be upgraded to DP PE at this time.

#### **G. APPROVALS**

32. Terasen Gas does not believe that the Resource Plan is the appropriate forum for review of this type of system integrity upgrade expenditure. Consistent with past practice, Capital

Projects are reviewed in the context of Revenue Requirements. As outlined on page 2 of Commission Order G-51-03, which approved the current PBR Settlement, the Commission has stated, "*CPCN's will not be filed for projects below \$5 million*". As a result, Terasen Gas has applied for CPCN approval for Capital Projects in excess of \$5 million during the course of the 2004 – 2007 PBR Period. As stated in its response to BCUC IR No. 2, Question 13.1, past practice and the Commission's CPCN Application Guidelines, as set out in Commission Letter No. L-18-04 and Order No. G-28-04, dictate that CPCN Applications are required for significant projects. As per Letter No. L-18-04, the CPCN Guidelines state "*The Commission may also establish project thresholds that may relate to size, production capacity or type that will determine CPCN application requirements for each utility.*" The threshold for Terasen Gas, which has been set out in the Company's 2004-2007 PBR Settlement Agreement, has been set at \$5 million regardless of the nature of the project. There are not any other project threshold criteria that the Company is aware of that exclude the need for a CPCN application, even if the project is in excess of \$5 million. No other criteria were considered in the Company's 2004-2007 PBR Settlement Agreement.

33. The recommended schedule for the replacement of the entire LP System, with BCUC CPCN approval requested by July 1, 2006, allows the utility to prudently manage the entire replacement, thus minimizing service disruption in this area. Separately, the Company will file its Mission Intermediate Pressure System CPCN Application. This second application is also driven by requirements for seismic upgrading to ensure system integrity, which is consistent with the rationale for the Vancouver Low Pressure Replacement CPCN application, and meets the criteria for a CPCN.

34. Terasen Gas believes it is important that the work be carried out as soon as possible to ensure that the integrity of the system is not compromised. Extending the overall duration of this Project poses significant additional risk to customers and to the public at large, in that an event involving soil disturbance will potentially cause complete loss of service for an indefinite time frame. Total system replacement is a reality, based on the Loma Prieta experience; extending the timeframe of total replacement constitutes risk that Terasen Gas considers unreasonably high.

35. The proposed schedule is consistent with past communication by Terasen Gas. Terasen Gas had informed customers in the 2005 Annual Review process and stated its intention to file this CPCN application in the first quarter of 2006. On April 26, 2006, Terasen Gas outlined its intention to file this CPCN in May 2006. On both occasions, Terasen Gas received no expressions of concern from key stakeholders with respect to its plan to file this CPCN.

36. Terasen Gas believes that a delay in the approval of this Application will result in the contractor not being able to undertake a significant part of the 2006 phase of this Project and estimates that this will increase the total contractor related cost of this Project by between \$240,000 and \$300,000 due to contract extras that will be claimed by the contractor to complete the work by the project completion date.

37. Terasen Gas believes that the LP replacement project is appropriately dealt with by the Commission as a CPCN as per the conditions identified in the 2004-2007 Performance-Based Rate Plan and is in the public convenience and necessity.

#### **H. PUBLIC CONSULTATION**

38. Terasen Gas continues to engage in regular communication with local residents. Terasen Gas is currently undertaking LP replacement work in coordination with City of Vancouver repaving and infrastructure improvements. In advance of the construction crew arrival on site Terasen Gas communicates with all affected residents verbally and by letters that explain the work being performed and that cite specific issues that affect gas service to individual homes/businesses during the replacement process. This will continue throughout the LP replacement proposed in the Application.

39. A dedicated Terasen Gas Planner has managed concerns raised by local residents, and field visits are routinely made to monitor progress.

40. The Terasen Gas Strategic Communications group will ensure that the most current information regarding the replacement strategy is posted on the Terasen Gas web site. Letters to affected customers will continue to be sent per standard process, and on-site information packages will be made available to all customers that request information of the crews performing the field work.

41. Call centre representatives will also be updated with respect to the annual workplan for this project.

42. Public consultation will not be in the form of information sessions, per se, but will be ongoing in the field, to ensure that residents have ample opportunities to inquire about the entire Project. It is likely that residents and customers will have different concerns depending on property and dwelling specific constraints, in addition to the alterations required on the low pressure meter sets. Therefore, it will be more appropriate to deal with each resident on a direct, one-on-one basis.

43. Terasen Gas believes this approval to be appropriate, as the work described by the Application is not unusual in nature, even if it is more extensive. Terasen Gas has been replacing the LP System for a number of years in order to upgrade the LP piping to current standards, thus ensuring the continued safe and reliable supply of natural gas.

44. Residents will be contacted prior to construction crews initiating work within their neighbourhoods, as the work is performed on a 'block-by-block' basis. Public consultation will happen on each day of the project, as letters outlining specific, customer-focused issues will be delivered to every affected household. Customers issues will include scheduling of service replacement, meter set replacement, relight, and any home repairs required after interior meter removals are completed.

45. Terasen Gas notes no stakeholders intervened in the proceeding or made comments on the application, even though they were all made aware of the application.

**I. CONCLUSION**

46. Terasen Gas submits that the evidence that is before the Commission in this Application supports the Company's position that this project is in the best interests of its customers and the general public, is a prudent expenditure and warrants the approval of this Application and the issuance of a CPCN to Terasen Gas to convert the 95 km, 7,100 service Vancouver LP distribution system to a PE DP natural gas system, with a completion date of December 31, 2008. Terasen Gas is concerned about the significant additional risk that will be borne to customers and to the public at large if the work is not completed within this time frame. A modest seismic event involving soil disturbance will cause complete loss of service for an indefinite time frame. Total system replacement is a reality, and extending the timeframe of total replacement induces significant additional risk that Terasen Gas considers to be significantly above an acceptable level.

47. Terasen Gas submits that Certificate of Public Convenience and Necessity for the Replacement and Upgrading of the Low-Pressure Gas Distribution System should be approved.

**ALL OF WHICH IS RESPECTFULLY SUBMITTED.**

***Original signed by: Tom Loski***

***For:*** \_\_\_\_\_  
Scott A. Thomson  
VP, Finance & Regulatory Affairs and Chief Financial  
Officer

June 19, 2006