EB-2016-0004

Ontario Energy Board

IN THE MATTER OF GENERIC PROCEEDING ON NATURAL GAS EXPANSION IN COMMUNITIES THAT ARE NOT SERVED

VULNERABLE ENERGY CONSUMERS COALITION
(“VECC”)
CROSS-EXAMINATION COMPENDIUM

UNION GAS - LONDON ECONOMICS

May 6, 2016

UNION GAS LIMITED

Answer to Interrogatory from
EPCOR Utilities Inc. (“EPCOR”)

Reference: Union Evidence, Schedule 1, Report prepared for Union by London Economics International LLC titled “Economically efficient approaches to community expansion – expert assistance in the matter of Union Gas Limited’s community expansion application (EB-2015-0179)” dated March 18, 2016

a) Please confirm the names of the authors of the report.

b) Please provide a detailed curriculum vitae for each individual which includes all publications, reports and previous testimony.

Response:

The following response was prepared by LEI.

a) The following LEI staff contributed to authorship of the report:

- AJ Goulding, President;
- Lance Brooks, Senior Consultant;
- Juliana Bruno, Research Associate;
- Jarome Leslie, Research Associate; and
- Azraa Zoomerwalla, Research Associate.

b) Please refer to Section 12 of this report for detailed curriculum vitae for all authors of LEI’s report.

TAB 1

on various objectives. Subject to the benefits generated for the province, costs of expansion may be fairly distributed across all rate or tax payers in the province. For example, an expansion project may be defined as a public good because of its ability to provide widespread environmental or economic benefits, and therefore, costs associated with this expansion project may be distributed across a broader customer base than solely those directly connected to the network.

In general the following principles should be adopted when considering rate design:

- **Cost causation and the avoidance of subsidies** - where possible customers should pay for those costs which are determined to be directly attributable to them in the provision of a service;
- **Financial stability and fair rate of return** – rates must be set at a level which enables a utility to meet its statutory obligations, while earning a fair rate of return and generating sufficient cash flow to support necessary investment;
- **Incentive compatibility** – rate design should provide for appropriate incentives, for example in terms of investment, service or consumption levels, to both the utility and customer;
- **Non-discrimination** – similarly situated customers should face similar terms and conditions and therefore similar rates; and
- **Administrative simplicity** – rates should be transparent and easy for customers to understand.

There are four main funding mechanisms that may be considered in order to fund community expansion projects as shown below. The choice between funding options is generally driven by individual characteristics of the markets in question including, but not limited to, state/province or federally mandated policy objectives, the number of service providers supplying the market, the volume of customers to be connected and the costs associated in doing so. Each mechanism reflects the general rate design principles identified above.

Figure 1. Funding mechanisms

Funding mechanism	Description
Natural gas expansion ratepayers	Consumers of the natural gas are responsible for all the costs associated with the expansion of the natural gas distribution network into these areas
Internal utility cross-subsidization	Expansion costs are recovered from all customers of a utility by adjusting a utility's general rate base
Jurisdiction-wide cross-subsidization	Expansion costs may be recovered from all natural gas ratepayers within the jurisdiction
Taxpayer funded	Expansion is seen as a social benefit whose costs are bourne by all tax payers

In conducting its analysis, LEI completed a high level review of the funding mechanisms in place across various North American natural gas, electricity and telecommunication markets. LEI has explored further the funding mechanisms adopted in certain jurisdictions as shown in Figure 2.

TAB 2

Figure 2. Sample funding mechanisms for community expansion programs adopted across North America

State/Country	Sector	Funding Mechanism
New York	Natural Gas	Internal utility cross-subsidization
North Carolina	Natural Gas	Taxpayer funding (via Government grants)
Nebraska	Natural Gas	Interal utility cross-subsidization
Ontario	Electricity	Provincial ratepayer cross-subsidization
Alberta	Electricity	Provincial ratepayer cross-subsidization
USA	Telecommunications	Federal ratepayer cross-subsidization
Canada	Telecommunications	Federal ratepayer cross-subsidization

In nearly all instances studied, the costs of expansion were subsidized either by the respective jurisdiction's ratepayers or taxpayers, existing ratepayers of the incumbent utility, or a combination of both. Our research indicates that cross-subsidization for rural expansion in each case does not require ratepayers of an existing company to bear the expansion costs of a new entrant or existing competitor. Instead, if charges are passed on to ratepayers they are done so in a uniform method whereby all ratepayers in the utility are charged equally, for example through a mark-up to existing rates applied to all ratepayers in a province or through the implementation of a broad based tax borne by all taxpayers.

Adoption of a cross-subsidy between an incumbent utility and a new entrant or other existing supplier is not a common approach to funding potential expansion projects, as it exacerbates known issues associated with other cross-subsidization methods, and violates the rate design principles specified above. For example, customers of an incumbent utility would be unfairly charged for costs that are not directly attributable to them, or attributable to the overall return earned by the utility. Further, these forms of cross-subsidization could result in a significant administrative burden, and eliminate the ability for currently cross-subsidizing customers to benefit in the future from economies of scale arising from the expansion projects as their economics improve.

An alternative approach to cross-subsidization within or between utilities would be to have the total costs socialized across all ratepayers or taxpayers thereby avoiding undue burden on a single utility's customer base. The Ontario government's policy position seeking to expand the natural gas distribution system would support the application of this mechanism and allow the realization of both the environmental and wider economic benefits that accrue as a result. Spreading the costs over a broader base would mute changes in consumption behavior while matching cost recovery with those who receive the environmental benefits.

TAB 3

UNION GAS LIMITED

Answer to Interrogatory from
Energy Probe Research Foundation ("Energy Probe")

Reference: EB-2016-0004 Schedule 1;
LEI Evidence p. 8 and p. 17

Preamble: LEI was retained by Union to provide a high level overview of the funding mechanisms employed in community expansion programs in the provision of natural gas services. LEI's work was not intended to be exhaustive, or to provide specific and detailed recommendations. Specifically, LEI was tasked with providing answers to the following questions:

a) What funding mechanisms are adopted for community expansion projects, for example from existing and/or new ratepayers?

b) What requirements, if any, are placed on incumbent utility customers to help fund expansion projects for new or other utilities?

c) Please indicate if, in its Scope of work, LEI reviewed the Background to the levels of subsidy the Board set out in E.B.O. 188, as reflected in the thresholds for the Project and Rolling Portfolio.

d) Please provide range of cross subsidization that your research found-- expressed as $/customer or $/customer per year and if possible the relative relationship of this to the customer distribution or total bill.

e) Does LEI have a comment on Union's proposed minimum Project PI of 0.4 (before government grants), or on the Rolling Portfolio?

Response:

The following response was prepared by LEI.

a- b) LEI has interpreted this question to begin at part c). Parts a) and b) as referenced above, appear to be part of the Preamble as they are copied verbatim from LEI's Report at Section 2.2, p. 8.

c) LEI reviewed the Ontario Energy Board's *Guidelines for Assessing and Reporting on Natural Gas System Expansion in Ontario* (EBO 188) as part of its review. LEI did not review in detail the background materials which lead to the establishment of the guideline by the Ontario Energy Board.

d) LEI's scope of work was to provide a "high level overview of the funding mechanisms employed in community expansion programs in the provision of natural gas services." Our review has focused on the approaches adopted and not the specific outcomes for each jurisdiction. A detailed quantitative assessment of the range of cross-subsidization was therefore considered out of scope for the purposes of LEI's assessment.

e) While LEI has reviewed Union's application as part of its review, the scope of work did not provide for a detailed assessment of specific elements, including the minimum profitability index ("PI") of 0.4 and Rolling Project Portfolio proposed by Union in its application to the OEB.

UNION GAS LIMITED

Answer to Interrogatory from
Energy Probe Research Foundation ("Energy Probe")

Reference**:** EB-2016-0004 Schedule 1;
LEI Evidence pp. 13-14

Preamble: In Ontario funding options available to natural gas distributors are being led by the Ministry of Economic Development, Employment and Infrastructure with support from the Ministry of Energy and the Ministry of Agriculture and Rural Affairs. Announced funding includes, the Natural Gas Access Loan, which will provide up to $200 million over two years to help communities partner with utilities to extend access to natural gas supplies and a $30-million Natural Gas Economic Development Grant to accelerate projects with clear economic development potential. Though these funding mechanisms exist, unlike the NCPC, there is currently no legislation which establishes the OEB as the administrator of them.

Does LEI have an opinion regarding administration of the NGAL and how this fits into the economic evaluation of projects?

Response:

The following response was prepared by LEI.

Examining the details of the administration of the NGAL was beyond the scope of LEI's engagement.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

Reference: Schedule 1, Section 2.2 and
EB-2015-0156 "Jurisdictional Review of Natural Gas Distribution System Expansion," KPMG Report prepared for the Ontario Energy Board, March 31, 2015"

Preamble: London Economics states: "To provide answers to Union's questions, LEI has reviewed the alternative funding mechanisms adopted across various North American natural gas (New York, North Carolina and Nebraska), electricity (Ontario and Alberta) and telecommunication (USA and Canada) markets.

What jurisdictions were considered and subsequently eliminated and why?

Response:

The following response was prepared by LEI.

No North American jurisdictions were considered and rejected, and LEI focused only on North America given the perceived degree of relevance to Ontario.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: LEI Report, p.8

What was the criteria LEI used to determine which North American jurisdictions to review? Is LEI aware of any other jurisdiction in North America that has undertaken an alternative funding mechanism for natural gas expansion that was not included in the report? If so, please provide details of those mechanisms.

Response:

The following response was prepared by LEI.

Natural gas jurisdictions were identified following an initial high-level desktop review. LEI focused its efforts based on its own industry expertise and knowledge of such programs. To complete the initial review LEI sought to identify if an explicit community expansion program existed in the region, and if so, what funding mechanisms were adopted under the program. LEI relied on publicly available information including regulator, legislature and utility websites (including applications, decisions/orders, legislation, codes and guidelines), reports and presentations.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: LEI Report

Is LEI aware of any other regulatory changes that have been considered and/or adopted by North American jurisdictions for the expansion of natural gas service, besides some form of subsidization? If so please, provide details.

Response:

The following response was prepared by LEI.

LEI is not aware of alternative (non-subsidization) approaches adopted for the provision of natural gas services.

TAB 4

UNION GAS LIMITED

Answer to Interrogatory from
South Bruce

Reference: Schedule 1, London Economics Report, page 1

Preamble: "Alternatively expansion of natural gas services, for example to rural communities in Ontario, may be categorized as a public good where substantial positive externalities accrue to all. The cost of expansion programs may therefore be recovered from all ratepayers or taxpayers within the province, as opposed to an individual utility customer base. The LEI team found no examples of customers of one utility subsidizing another's except where all customers within a jurisdiction across multiple companies provided the funding."

a) Please confirm that the LEI findings are consistent, in principle, with the adoption of a mechanism that would use funding collected through a province-wide per GJ charge to subsidies natural gas expansions that are uneconomic but are deemed to be in the public interest**.**

b) Please identify any reasons, other than Union's view that the OEB does not have the jurisdiction to implement such a mechanism, that this is not an option that should be considered.

Response:

The following response was prepared by LEI.

a) While such a method would be one potential means of funding uneconomic natural gas expansions, LEI did not specifically consider such a configuration in its report and thus cannot comment on it.

b) LEI recognised in its report a broad-based approach to funding community expansion programs may provide an alternative approach to Union's proposed internal-utility cross subsidization. Specifically these approaches may be utilized where an expansion program is clearly defined as a public good, providing for recognition of the wider environmental and economic benefits that may be accrued through the investment to the broader public.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit A, Tab 1, Schedule 1, p. 11

London Economics' evidence discusses "economic efficiency" and associated price signals for *"efficient resource using behaviour"*.

Please discuss whether, and if so how, Union's proposal to require existing Union rate payers to subsidize otherwise uneconomic expansions of Union's system to unserved communities furthers principles of "economic efficiency" and encourages *"efficient resource using behaviour"*.

Response:

The following response was prepared by LEI.

LEI's response is subject to the presumption that Union is operating within a public policy consensus that views natural gas expansion as having broad-based economic and environmental benefits which are enjoyed by Union's existing customer base. The proposed expansions are relatively small, suggesting that the creation of new and potentially costly set of administrative arrangements may be more expensive relative to maintaining cross-subsidies within the utility. Union's proposal allows for the expansion to be affordable to new customers in the expansion areas, while having bill impact of between 0.1% and 0.7% on existing customers.[1] Existing customers also benefit from the potential embedded option value of the additional infrastructure, in that the new customers may ultimately prove more profitable than anticipated, and make a greater contribution to system costs. Ratemaking is often a balance between strict cost causation, policy initiatives, and administrative considerations – while internal cross subsidies violate principles of cost causation, if such subsidies are small, they may be less distorting than the creation of entirely new administrative measures to implement policy-driven initiatives.

[1] Union Gas Limited. Application EB-2015-0179 – Union Gas Limited ("Union") – Community Expansion – Evidence Update. December 14, 2015.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit A, Tab 1, Schedule 1, p. 14

The evidence asserts that recovering expansion costs exclusively from new customers would result in *"exorbitantly high rates"*.

a) Please provide the rate levels that London Economics has concluded would be *"exorbitantly high"*.

b) What energy costs/rates has London Economics considered in comparison to those which it asserts would be *"exorbitantly high"?*

Response:

The following response was prepared by LEI.

a) A quantitative assessment of the rate levels charged to natural gas expansion ratepayers was outside of the scope of work. LEI consider rates to be "exorbitantly high" under a natural gas expansion ratepayers funding mechanism relative to the rates paid by existing customers, and the rates determined under the three alternative funding mechanism identified. The alternative funding mechanisms provide for the distribution of part, or all of, the total cost (including return margin) of expansion across a broader ratepayer/ taxpayer base.

b) Please refer to LEI`s response to part a).

TAB 5

Figure 4. LEI ranking of funding mechanisms with respect to Union's application

	Cost causation and avoidance of cross subsidies	Financial stability and fair rate of return	Incentives compatibility	Non-discrimination	Administrative simplicity and transparency
Natural gas expansion ratepayers	●	●	○	○	◑
Internal utility cross-subsidization	◑	●	●	◕	●
Jurisdiction-wide cross-subsidization	◔	●	●	●	◔
Taxpayer funded	◔	●	●	●	◑

● Strong ○ Weak

As shown above, funding expansion costs exclusively through new customers strongly aligns with the principle of cost causation and avoidance of cross subsidies. It is also administratively simple to implement and easy to communicate to customers. However, this method is unfavorable as utilities would only be able to recover its costs, maintain financial stability and earn a fair rate of return by charging exorbitantly high rates. Further, charging high rates to new customers removes the cost saving incentive of switching to natural gas, potentially defeating the purpose of the expansion. This is also discriminatory as this customer group is not able to benefit from the affordable rates available to existing customers.

Internal utility cross-subsidization allows an incumbent utility to recover distribution expansion costs, maintain financial stability and earn a fair rate of return while offering affordable rates to new customers. In doing so, this approach preserves the cost saving incentive of switching to natural gas ensuring the viability of the expansion. Under this regime, discrimination is also reduced as rates are uniform across all utility ratepayers. It is not removed entirely as existing customers pay for the cost of the distribution expansion. Depending on the size of the internal cross-subsidy this mechanism can align with the principle of cost causation. Requiring natural gas ratepayers to pay their own expansion costs, or allowing for internal cross-subsidization, may limit the incentives for new entry or expansion of other distributors into certain areas. Further as the total new expansion customers securing access to the network is relatively small compared to the existing ratepayer base these mechanisms are considered administratively simpler to implement.

Much like internal utility cross-subsidization, jurisdiction-wide cross-subsidization and tax payer funded mechanisms enable the utility conducting the expansion project to recover the

UNION GAS LIMITED

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition ("VECC")

Reference: Schedule 1, p. 14

a) Please explain/provide the quantitative analysis which supports the rankings shown in Figure 4: LEI ranking of funding mechanisms with respect to Union's application.

Response:

The following response was prepared by LEI.

The Harvey Balls utilized in Figure 4 communicate LEI's qualitative assessment of each funding mechanism relative to the rate design principles listed in the textbox on page 12 of LEI's report. This assessment specifically considers Union's application for community expansion programs, the total number of new ratepayers to be connected and the cost estimates of the expansion projects.

UNION GAS LIMITED

Answer to Interrogatory from
EPCOR Utilities Inc. ("EPCOR")

Reference: Union Evidence, Schedule 1, Report prepared for Union by London Economics International LLC titled "Economically efficient approaches to community expansion – expert assistance in the matter of Union Gas Limited's community expansion application (EB-2015-0179)" dated March 18, 2016

Preamble: In Figure 4, at page 14, the authors evaluate alternative funding mechanisms according to several criteria. The funding mechanism entitled "Internal utility cross-subsidization" is given the strongest possible rating with respect to "Administrative simplicity and transparency". In comparison, "Jurisdiction-wide cross-subsidization" is given a weak evaluation in this same category.

a) Identify the administrative procedures and activities that are being assumed in these evaluations.

b) Identify and provide an explanation of your assumptions about which entities would be conducting each administrative task under each of these two funding mechanisms.

c) Provide a detailed explanation of the word "transparency" as used by LEI in the figure referenced above.

Response:

The following response was prepared by LEI.

a) The Harvey Balls utilized in Figure 4 communicate LEI's qualitative assessment of each funding mechanism relative to the rate design principles listed in the textbox on page 12 of LEI's report. Importantly this assessment specifically considers the scale of Union's application for community expansion programs, the total number of new ratepayers to be connected and the cost estimates of the expansion projects. In this context LEI considered internal utility cross-subsidization to be an administratively simpler and more transparent approach to funding the community expansion projects when compared to jurisdiction-wide cross-subsidization.

The introduction of more than one utility associated with a cross subsidy, for the scale of program proposed by Union, was seen to create unnecessary administrate burden as part of the general rate setting process. This burden may manifest in the form of additional accounting costs, billing costs and leading to time spent proving that rate design is fair to all customers.[1]

Under this scenario, the rate impacts of all natural gas suppliers would need to be evaluated by the Ontario Energy Board, with a focus on the total costs recovered and by whom. As customers or customer groups value access to supply of natural gas differently these impacts and the total costs recovered from each will likely differ. All natural gas utilities may therefore be required to submit amended rate applications showing the impact of the jurisdictional wide cross subsidy on their own ratepayers.

Further, in addition to directly violating the cost causation principle LEI considered a jurisdiction-wide cross-subsidy lacked transparency relative to an internal cross subsidy. Specifically, in this instance non-Union ratepayers, whom may not directly benefit from the community expansion program, are relied upon to recover the costs associated with the community expansion program.

b) The roles and responsibilities would largely not change between the two funding mechanisms. For example the Ontario Energy Board would still be required to approve rate applications submitted by each utility. Utilities would continue to be responsible for compiling their assessment of rates and the cost impacts of associated community expansion programs.

The Ontario Energy Board's tasks may expand under a jurisdictional wide approach as it engages all natural gas utilities each time a community expansion project is to be considered. This level of complexity regarding the assessment, as well as the potentially opaque outcomes surrounding the total cost recovery for the expansion projects, led to a lower ranking relative to adopting an internal utility cross subsidization approach.

c) Rates should be straightforward for customers, service providers and regulators to understand and apply. The rate setting process should provide stakeholders with the confidence that it is conducted in an unbiased fashion. Customers should be able to calculate their monthly bills themselves, and be able understand why the rate is calculated in the prescribed fashion.

[1] An additional step whereby funds are transferred between utilities will also be required in the settlement process where a cross-subsidy between utilities is introduced.

TAB 6

UNION GAS LIMITED

Answer to Interrogatory from
Energy Probe Research Foundation ("Energy Probe")

Reference: EB-2016-0004 Schedule 1;
LEI Evidence p. 3

Preamble: Our research indicates that cross-subsidization for rural expansion in each case does not require ratepayers of an existing company to bear the expansion costs of a new entrant or existing competitor. Instead, if charges are passed on to ratepayers they are done so in a uniform method whereby all ratepayers in the utility are charged equally, for example through a mark-up to existing rates applied to *all ratepayers in a province or through the implementation of a broad based tax borne by all taxpayers*.(emphasis added)

a) Please reconcile this statement with Union's evidence that it's existing residential ratepayers should pay up to $24 per year to subsidize Community Expansion (CE) (page 7).

b) Does LEI support such broad-based approach(es) (as opposed to individual utility cross-subsidization)? If so, please explain the basis for this support/preference or non-support/preference. In particular, discuss whether this approach will allow new entrants (such as EPCOR) to operate on the same basis as incumbent utilities.

c) Please discuss the advantages/disadvantages that incumbent utilities have, including, but not limited to, large rate base, Franchise Agreements, ratepayer funded DSM programs and so on.

d) Is there an economic basis/empirical evidence that demonstrates that incumbent utilities provide expansion of distribution service to rural areas at a lower cost than new entrants?

Response:

The following response was prepared by LEI.

a) The reference made by Energy Probe in its question refers to an internal cross subsidy proposed by Union as part of a broader approach to funding its community expansion program. As part of the internal cross subsidy only Union's existing ratepayers would be subsidizing new expansion ratepayers. Ratepayers supplied by other natural gas utilities located throughout the province would not be burdened with these additional costs.

   The extract from LEI's report referenced by Energy Probe refers to a scenario where a broad-based approach is adopted to funding community expansion projects. These funding mechanisms, defined as jurisdiction-wide cross-subsidization and taxpayer funding, would result in a scenario where all ratepayers or taxpayers within a jurisdiction are utilized to recover the costs associated with community expansion programs. This is a different approach to the one suggested by Union in its application to the Ontario Energy Board.

b) The merits of one approach over another are subject to many variables including, but not limited to:

- individual market supply and demand characteristics (such as the number of suppliers, and total demand, availability of substitutes);
- public policy mandates of local, provincial and federal governments;
- size and costs of proposed expansion programs;
- perceived individual and public benefits associated those programs; and
- availability of alternative funding mechanisms.

LEI's mandate was not to recommend one over the other, but rather to describe the attributes of funding mechanisms adopted for community expansion projects in other North American jurisdictions, including any requirements placed on incumbent utility to fund expansion projects for new or other utilities.

c) LEI's scope of work was to provide a "high level overview of the funding mechanisms employed in community expansion programs in the provision of natural gas services" only. An assessment of the advantages and disadvantages one utility may have over another was out of scope for the purposes of LEI's assessment.

d) Exploring relative cost structures of various potential distribution service providers in detail was beyond the scope of LEI's engagement.