



**How do we guarantee the  
accuracy of gas meters and  
the trust of consumers in a  
changing market ?**

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For the Industry Canada Office of Consumer Affairs

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## **Acknowledgements**

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## **EXECUTIVE SUMMARY**

The objective of this report is to detail Option consommateurs' point of view concerning the direction taken by Measurement Canada relating to the natural gas trade sector review. In this context, Option consommateurs wants to make sure that the accuracy of natural gas meters is maintained with the help of industry regulations and standards implemented by Measurement Canada.

In 1999, Measurement Canada began the process of reviewing its intervention in trade measurement. In all 39 trade sectors have been identified and by 2013 approximately, will have been examined to establish an intervention level that will optimize the use of the organization's resources, the adaptability to technological and market changes and the protection of the public. The objective of sector reviews is to consult interested parties such as industry representatives, consumers or any other public interest group, in order to implement changes pertaining to the organization's intervention process. Some of these sector reviews directly affect consumers because the quantities that are measured by these sectors are sold directly to consumers. Option consommateurs has an interest in these sector reviews and in 2001, took part in the electricity trade sector review. This year, Option consommateurs is taking part in the retail food trade sector review and the natural gas trade sector review.

Measurement Canada's intervention takes place on many angles and changes have been suggested for most of these, either by the organization itself or by the Canadian Gas Association. Measurement Canada is responsible for the Accreditation Program, which aims at assigning tasks to various outside organizations that were once performed by Measurement Canada. No changes have been suggested for this particular program. Measurement Canada develops metrological and technical specifications for meters. The proposed changes would imply using the Canadian Standards Association to implement these new standards. Tracing these measurement standards would be the responsibility of this organization and no changes have been suggested with the exception of using the

Accreditation Program to verify the devices that are used to check gas meters. The approval of new meters is the responsibility of the organization and it has been suggested that the Accreditation program or the Canadian Standards Association should be used instead. The initial verification and the reverification of the meters is the responsibility of Measurement Canada, but the Accreditation Program has progressively taken over this role of direct intervention from the organization. The inspection of meter installations is the direct responsibility of the organization, but proposals are currently on the table to assign this task to accredited organizations. Finally, Measurement Canada handles investigations pertaining to complaints and regulations pertaining to disputes. The organization intends to pursue these last two activities. The latter are considered non negotiable in relation to sector reviews.

We did a study of the regulatory process in the United States. There is no central organization equivalent to Measurement Canada that is responsible for regulating natural gas meters in that country. Regulations are handled by both the federal and state governments. Their application also varies depending on the state and there is a combined use of standards and regulations, depending on the jurisdiction. In certain states authorities use federal standards to implement their regulations whereas other states don't mention these standards. As well, American regulations are different in that the standardizing role is handled at the federal level and the regulatory process is handled by the states.

In order to develop our position, one that reflects the opinion of Canadian consumers, Option consommateurs called on the firm Environics to do a survey across Canada and set up six discussion groups which were held in Toronto, Calgary and Montreal. These consultations enabled us first of all to determine that in general, consumers have confidence in their natural gas meters and they take for granted that they work properly. We noticed that consumers don't have tremendous confidence in natural gas distributors, and consumers who called on these companies when a problem occurred with gas measurement were moderately satisfied with the manner in which the problem was handled. We also noticed that consumers want a regulatory organization that is neutral, impartial, protects their interests and doesn't favor any form of self-regulation. Consumers don't know Measurement Canada well at all and a very small minority has considered

calling on this organization in case of problems pertaining to their meters. When faced with the changes proposed in relation to the natural gas trade sector review, consumers were firmly opposed to manufacturers taking part in tests that aim at improving meters. However, consumers were favorable to the Canadian Standards Association implementing standards for meters and performing tests to approve new types of gas meters.

Option consommateurs, following their document research, the cross-Canada survey, the discussion groups, the experience it gained during the electricity trade sector review and its participation in the standardizing process, recommends the following:

**1- That Measurement Canada keep its current Accreditation Program and make sure that the control guidelines over accredited organizations, i.e. surveillance auditors, product auditors and the auditors who approve accreditation renewals every three years, be kept and strictly applied**

**2- That the existence and the role of Measurement Canada should be more publicized and this publicity should be directed towards consumers who have pointed out gas metering problems with their distributor**

**3- That Measurement Canada's level of intervention should remain high for all trade transactions that involve residential consumers**

**4- That any change made to Measurement Canada's level of intervention as to trade transactions that involve intervening parties other than residential consumers, preserve current accuracy levels as to gas measurement**

**5- That the analysis of the cost-benefit ratio of Measurement Canada's intervention programs take the interests of consumers into account**

**6- That the analysis of the costs-benefit ratio of Measurement Canada's intervention programs equally take into account the existence and the removal of these programs**

**7- That the advantages and the consequences of using this approach, one that concentrates on the efficiency as to the application of regulations, should be explained more clearly to all entities who are part of this market**

**8- That the implementation of new technology take into account the needs of consumers and at least make sure that the current reliability and accuracy of meters be maintained**

**9- That Measurement Canada take part in the development of standards and technical specifications adopted through the Standards Council of Canada and make the final decision as to their adoption**

**10- That standards and technical specifications adopted through the Standards Council of Canada be adopted by Measurement Canada as regulations and that these regulations should be made to apply to all meter manufacturers**

**11- That financial and technical assistance should be provided to consumer groups who take part in meetings set up to develop technical standards for meters and that this assistance not interfere in any way, shape or form with their independence**

**12- That if Measurement Canada entrusts the approval of new types of meters to accredited organizations, that this approval should apply only to organizations other than meter manufacturers who have no business relationship to them and who possess enough knowledge and own the necessary equipment to perform the necessary tests**

**13- That if Measurement Canada entrusts the approval of new types of meters to accredited organizations, that Measurement Canada should develop a special Accreditation Program that is more restrictive than the one currently in place**

**14- That if Measurement Canada entrusts the approval of new types of meters to accredited organizations, this organization should have the final word in that approval and should take the necessary steps to maintain their efficiency in doing so**

**15- That if the approval process for new meter types is entrusted to the Canadian Standards Association, Measurement Canada should have the final say in this matter and should take the necessary steps to maintain their efficiency in doing so**

**16- That Measurement Canada have the final word in approving new types of meters, even if the organization gives value to the results of the tests that were performed by foreign regulating organizations recognized internationally**

**17- That the inspection of the equipment that is used to verify the meters of organizations accredited by the Accreditation Program, should remain the responsibility of Measurement Canada**

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## INTRODUCTION

Measurement Canada is a part of Industry Canada. The latter's mission is to guarantee the accuracy of trade measurements through various means, such as approving new equipment that will be used in trade, the initial verification of measurement equipment before it's used, the regular checking of the measurement equipment being used, the verification of the net quantity of products that are sold on the basis of their measurement and the settling of disputes and complaints related to measurement<sup>1</sup>. These activities are regulated by two laws: the *Electricity and Gas Inspection Act* regulates the measurements for electricity and natural gas ; the *Weight and Measures Act* regulates all the other sectors that fall under the organization's jurisdiction. Measurement Canada intervenes in various trade sectors, a portion of which directly affects consumers, such as electricity, natural gas, retail food or gasoline. For these sectors, Measurement Canada aims at maintaining the trust of consumers by making sure that the products they purchase are accurately measured.

In 1999, Measurement Canada began the process of examining thirty-nine (39) trade sectors over a period of 14 years, i.e. up until 2013. The review of trade sectors consists in reviewing the level of intervention of Measurement Canada for each sector, in order to determine if the current level of intervention should be modified according to market conditions and the protection needs of consumers. Each trade sector will be reviewed and Measurement Canada will re-evaluate its level of intervention.

Each sector review is done separately and means consulting parties who have an interest in the sector being reviewed. Generally, each sector review brings together consumer and industry representatives and people from various public interest groups. The sort of consultation process that is used can vary from one sector review to the other: In certain cases, the sector review team organizes one or many meetings where the parties try to reach a consensus as to the changes that need to be made to the level of intervention from

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<sup>1</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 3.

Measurement Canada. In other cases, the sector review team meets individually with the interested parties and summarizes the opinions put forth. After these consultations the sector review team makes recommendations that are submitted to the Measurement Canada *Senior Management Team*, who makes the final decision as to the approval of these recommendations. Finally, Measurement Canada implements the changes approved by the *Senior Management Team*.

As a consumer advocacy group, Option consommateurs participates in these sector reviews that involve the sale of a product to consumers. The trade transactions that implicate consumers put them in a vulnerable position. When a product is purchased, the price of which is set according to a measurement (gasoline sold by the liter, natural gas sold by cubic meter or cheese weighed in kilograms), consumers don't have the financial, legal or technical means to verify if they get their money's worth. Furthermore, consumers can't defend their rights by themselves if they believe that the measurement that is provided during the transaction is inaccurate. Consumers therefore need for a neutral organization with no commercial interest to implement and make sure regulations are respected in matters of trade measurements. Measurement Canada has this responsibility in Canada and Option consommateurs feels it's important to intervene to make sure it's maintained in relation to trade sector reviews.

Last year, Option consommateurs took part in the electricity sector review and this enabled us to express our point of view as to requests for self-regulation by the industry. Option consommateurs is opposed to such a self-regulation because it puts the protection of consumers in jeopardy, the latter being the vulnerable component in this sector. Option consommateurs felt it was important for the changes made to Measurement Canada's intervention to not question its role of overseer of the accuracy of measurements and of defender of the vulnerable parties, i.e residential electricity consumers.

This year, Measurement Canada is reviewing two sectors which directly involve consumers : retail food and natural gas. Option consommateurs is taking part in both sector reviews. This report deals with the natural gas sector review process, during which Option consommateurs will attend five meetings. During these meetings participants will try to reach a consensus on the future interventions from Measurement Canada. Furthermore

Option consommateurs was invited by Measurement Canada to become an external member of the organization.

This report attempts to express Option consommateurs' opinion pertaining to Measurement Canada's natural gas sector review. Our position is determined by an overall picture of the following elements : Option consommateurs' traditional opinions in consumer matters ; the results of a study on the methods used by Americans in matters of natural gas meter regulations ; the results of a cross-Canada survey done by Environics, a firm that specializes in surveys; a summary of six discussion groups set up by Environics, held in Toronto, Calgary and Montreal on July 16th, 18th and 25th 2002; the opinions of the Canadian Gas Association (CGA). Option consommateurs' recommendations are in the last section of this document. Before beginning our study of the methods used in the United States in matters of natural gas measurement regulations, we will briefly explain what Option consommateurs' mission is as well as Measurement Canada's various jurisdictions.

## **1-OPTION CONSOMMATEURS' MISSION**

### **1.1- The organization's purpose, objectives and jurisdictions**

Option consommateurs' mission is to defend and promote the rights and interests of consumers. Its objective is to reduce, even eliminate the injustices done to consumers. To do this, the organization currently relies on a team of twenty-three (23) people and intervenes with the help of five services:

1. Budget services;
2. Legal advice;
3. Press agency services;
4. Research and representation services;
5. Call and support center.

The organization has existed since 1983. In 1999, Option consommateurs merged its activities with those of the Association des consommateurs du Québec (ACQ), which had already existed for more than 50 years and accomplished the same tasks as Option consommateurs. The activities of both organizations were merged to increase efficiency and decrease operating costs.

Option consommateurs is a co-operative society set up in accordance with the *Cooperatives Act*. The organization holds an annual general assembly during which its broad orientations are determined. This assembly is sovereign when it comes to certain decisions that affect the organization. The Board of Directors is elected during the general assembly and their main mandate is to make sure that the broad orientations become a reality. They don't

oversee the organization's day to day activities. These are supervised by the management team which is made up of seven (7) employees.

## **1.2- Main regular activities**

Through the years, Option consommateurs has developed an expertise in various areas and is seen as an invaluable intervening party in the consumer advocacy sector. Each year we reach between 7 000 and 10 000 consumers directly, we do more than 400 interviews with the media, we sit on many job committees and boards, we implement far-reaching intervention projects with important partners, we produce research reports, studies, purchasing guides and even an information and consumer action magazine called *Consommation*.

## **1.3- The research and representation service**

The research and representation service is responsible for the relationship between Option consommateurs and the various government agencies in Quebec and Canada as well as with Crown corporations in both governments. The research and representation service represents Option consommateurs at the Régie de l'énergie du Québec, an organization that regulates electricity, natural gas and the retail sale of gasoline.

The research and representation service also speaks for Option consommateurs in various committees related to the following sectors: Food and agriculture, financial, energy as well as property and personal insurance.

This service oversees the research financed by various governmental organizations, such as the Industry Canada Office of Consumer Affairs. This research aims at developing the expertise of Option consommateurs in various areas, as well as putting together the arguments that will formulate the point of view of consumers to the various government authorities, so that the latter may take these opinions into consideration when they make public political decisions. This report is among the studies financed by this organization

and aims at defending the interests of consumers in relation to Measurement Canada's natural gas sector review.

## **2- MEASUREMENT CANADA'S CURRENT INTERVENTION AND PROPOSED CHANGES**

The obligations and powers of Industry Canada in matters of natural gas trade measurements are defined by the *Electricity and Gas Inspection Act*, which is administered by Measurement Canada. With this law and its related regulations, Measurement Canada performs various tasks to guarantee the accuracy of natural gas measurements. The law stipulates that any device that is used to quantify the amount of natural gas that will eventually be sold to a consumer, must be approved, inspected and sealed. The *Electricity and Gas Inspection Act* also stipulates the rights and responsibilities of suppliers, meter owners and natural gas buyers. These rights and responsibilities guarantee equity and accuracy for the buyer and the supplier<sup>2</sup>.

### **2.1- The Measurement Canada Accreditation Program**

Measurement Canada currently intervenes directly in the market but not for all of its activities. The organization has set up partnerships with the private sector to entrust certain tasks to it through an Accreditation Program. The latter was adopted in 1986 with the publication of the following document : LMB-EG-05 – Criteria and Procedures for the Accreditation of Electricity and Gas Meter Verifiers and enables qualified organizations to proceed with the compulsory inspection (initial verification) and the periodical inspection (reverification) of weighing and measuring devices for Measurement Canada. In 1988, the Legal Metrology Directorate (now Measurement Canada) accredited the first organization

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<sup>2</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 5.

to check single-phased electrical meters<sup>3</sup>. In the natural gas sector, most accredited organizations are natural gas distributors. Currently, almost all of the initial verifications and reverifications are performed by accredited organizations and Measurement Canada inspectors have almost stopped inspecting natural gas meters in that particular area.

The organizations that wish to be accredited have to implement a complete quality insurance program that meets the S-A-01 standard (inspired by the ISO 9002 standard). When an organization applies for accreditation, it has to specify what kind of operation (initial verification or reverification) and what kind of device it wants to be accredited for<sup>4</sup>. In its application, the organization has to develop a quality manual that describes the procedures it will use to perform the tasks for which it was accredited. The application is afterwards looked over by Measurement Canada, which then audits the organization that made the accreditation request. Measurement Canada auditors analyze the quality manual and decide to grant or reject the accreditation for a three-year period. When the accreditation is granted, the accredited organizations have to inspect the weighing and measuring devices for which they were accredited, in accordance to Measurement Canada requirements. Once the accreditation has been granted Measurement Canada no longer inspects the measuring devices that concern this organization, but performs monitoring activities. These activities are guaranteed by the surveillance and product audit procedure. Surveillance audits are done on an annual basis and involve verifying the quality manual as well as the field surveillance procedures used by the accredited organization. Product audits revolve around checking measuring devices approved by the accredited organization. Their frequency varies according to the meter type and the problems previously pointed out. When problems occur pertaining to the accredited organization's job performance, Measurement Canada auditors can decide to take action, which can go as far as suspension

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<sup>3</sup> MEASUREMENT Canada, *Measurement Canada Accreditation Program*, website, <http://strategis.ic.gc.ca/epic/internet/inmc-mc.nsf/vwGeneratedInterf/lm01807f.html>; MEASUREMENT Canada, *S-A-01 Accreditation criteria for organizations who want to do inspections in accordance with the Electricity and Gas Inspection Act and the Weight and Measures Act*, Website, <http://strategis.ic.gc.ca/epic/internet/inmc-mc.nsf/vwGeneratedInterf/lm01469f.html>.

<sup>4</sup> MEASUREMENT Canada, *Measurement Canada Accreditation Program*, website, <http://strategis.ic.gc.ca/epic/internet/inmc-mc.nsf/vwGeneratedInterf/lm01807f.html>.

or revoking the accreditation. When the accreditation expires, the organization has to apply for a renewal and Measurement Canada proceeds with its audits and decides to grant or reject the new accreditation <sup>5</sup>.

According to Measurement Canada, it's advantageous for organizations to be accredited :

- Accredited organizations can perform their inspections at their own pace and they are less dependent upon Measurement Canada for these activities. **Advantage** : Organizations can perform their inspections at the time most suitable to them, while saving time and money.
- It's possible for accredited organizations to expand their services by offering inspection services to other organizations. **Advantage** : Organizations can make financial profits and improve their competitiveness.
- It's possible for accredited organizations to better know the rules and regulations pertaining to measurements. **Advantage** : Organizations are better equipped to meet the demands of Measurement Canada and benefit from a quality program (improving products and services, waste reduction and increased trust in products of enduring quality)<sup>6</sup>.

Measurement Canada believes that accreditation is advantageous for them as well:

- Measurement Canada monitors the organizations that meet its demands. **Advantage** : Monitoring costs less money and takes less time than inspections per se. Measurement Canada is able to better carry out its duties and its mandate with the help of its new partners.

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<sup>5</sup> Benoît MONTPETIT, Measurement Canada Auditor, Interview done in Montreal on July 29th 2002.

<sup>6</sup> MEASUREMENT Canada, *Measurement Canada Accreditation Program*, website, <http://strategis.ic.gc.ca/epic/internet/inmc-mc.nsf/vwGeneratedInterf/lm01807f.html>.

- Measurement Canada devotes fewer resources to having their demands met.  
**Advantage :** Measurement Canada can invest the money it saves in other areas that require more monitoring<sup>7</sup>.

## **2.2- Measurement Canada jurisdictions**

Currently, Measurement Canada intervenes in various areas in order to monitor trade measurements. The description of these jurisdictions is extracted from the consulting document written by the Measurement Canada natural gas sector review. It applies to all trade sectors covered by the organization, i.e. those covered by the *Electricity and Gas Inspection Act* and the *Weight and Measures Act*.

### **2.2.1- Developing metrological measures**

The Measurement Canada program development division is responsible for developing standards, regulatory changes, policies and procedures that surround weighing and measuring devices. When a new metrological technology appears on the market, it will be approved according to the applicable regulatory standards and test procedures. Standards are developed after consultation with industry representatives<sup>8</sup>.

In relation to the natural gas sector review, the Canadian Gas Association (CGA) suggests using the Canadian Standards System (CSS) to develop new standards. The CGA suggests that « Measurement Canada call on standard development organizations approved by the Standards Council of Canada, such as the Canadian Standards Association (CSA), to diversify the services that are provided»<sup>9</sup>.

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<sup>7</sup> MEASUREMENT Canada, *Measurement Canada Accreditation Program*, website, <http://strategis.ic.gc.ca/epic/internet/inmc-mc.nsf/vwGeneratedInterf/lm01807f.html>.

<sup>8</sup> MEASUREMENT Canada, *Natural gas trade sector review*, Ottawa, Mesures Canada, 2002, 19.

<sup>9</sup> CANADIAN GAS ASSOCIATION, *Report presented to the Natural gas trade sector review and to Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association, June 2002, 9.

### **2.2.2- Maintenance and calibration of measurement standards**

Measurement Canada, through the Calibration Services Laboratory, has and maintains measurement standards (for reference purposes) that are traceable to the National Research Council of Canada's basic primary measuring units. Measurements for mass, length, liquid volume, temperature, pressure and electricity are standardized and certified. These measurements standards are used either by government inspectors or accredited and non accredited entities. Measurement Canada also calibrates industry measurements that are used to inspect and certify trade measuring devices in relation to the Accreditation Program described earlier <sup>10</sup>.

Measurement Canada is ready to evaluate using Alternative Service Delivery Mechanisms (ASD) to inspect industry measurements that are used to check over and certify measuring devices<sup>11</sup>. This means that Measurement Canada is willing to no longer intervene directly in this jurisdiction and is willing to entrust it to outside organizations. This could be done among others through the Accreditation Program used for the initial verification and reverification of meters.

### **2.2.3- Approving new measuring devices**

Measurement Canada, through the Approval Services Laboratory, has to approve all weighing and measuring devices used in trade in Canada. All new and modified devices are examined and tested in regard to legal requirements in matters of design, composition, build and performance. This service provides instruments that are reasonably precise during their useful life span and helps to reduce their fraudulent use as much as possible. It's important to note that Measurement Canada does not approve trade measuring devices for the sectors for which it doesn't have executory programs, notably pipeline meters, cryogenic product meters, etc. Measurement Canada is a partner of the Mutual Recognition

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<sup>10</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 19.

<sup>11</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 17.

Program with its American equivalent, in order to harmonize the demands that aim at approving weighing devices in both countries<sup>12</sup>.

Measurement Canada is ready to evaluate using Alternative Service Delivery Mechanisms (ASD) for this activity<sup>13</sup>. This means that Measurement Canada is willing to no longer intervene directly in this jurisdiction and is willing to entrust it to outside organizations. This could be done among others through the Accreditation Program used for the initial verification and reverification of meters. For its part the Canadian Gas Association (CGA) recommends simplifying the approval process for new technologies by recognizing the validity of testing data from other international regulatory organizations (such as the *National Institute of Standards and Technology* (NIST) in the United States and the *Netherlands Metrological Institute* in Holland) and by basing itself on other measurement standards<sup>14</sup>.

#### **2.2.4- Initial verification of new devices**

The regional inspection personnel or the accredited meter inspectors of Measurement Canada, have to verify (initial verification) weighing and measuring devices, unless exempt to do so by the Statutes and Regulations before they're used in trade. This measure aims at making sure that all devices meet approval criteria, that they're installed properly and that they work within the applicable margins of tolerance before being used. In the natural gas sector, 90% of meters are inspected by accredited organizations<sup>15</sup>.

Whether it's through the Accreditation Program or Measurement Canada's direct inspection, the initial verification is not done for all new and operational meters. Measurement Canada uses a sampling program that stipulates how many samples have to

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<sup>12</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 19.

<sup>13</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 17.

<sup>14</sup> CANADIAN GAS ASSOCIATION, *Report presented to the Natural gas trade sector review and to Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association, June 2002, 14.

<sup>15</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 20; Benoît MONTPETIT, Measurement Canada Auditor, interview done in Montreal on July 29th 2002.

be inspected. If all meters that are part of the sample meet with the specifications, the whole batch is approved.

No changes have been proposed for this particular activity. Measurement Canada will continue using accredited organizations to perform the initial verification.

### **2.2.5- Periodical inspection of operational devices (reverification)**

Electricity and natural gas meters are inspected at regular intervals, as specified in the *Electricity and Gas Inspection Act*. This way it's possible to make sure that the meters that have already been inspected continue to function within the set boundaries after a given time (eight years for gas meters). The measuring devices used to measure mass or volume, in accordance with the *Weight and Measures Act*, are checked sporadically and not regularly, during their entire life-span, to make sure they are adequately maintained, that they continue measuring in a precise way and that they are not used for fraudulent purposes. In the natural gas sector, 90% of meters are reverified by accredited organizations<sup>16</sup>.

Whether through the Accreditation Program or through the direct inspection of Measurement Canada, the batches due for re-inspection are not all reverified. Measurement Canada uses a sampling program that stipulates how many meters should be inspected. If all meters that are part of the sample meet the specifications, the whole lot is approved for another eight years.

No changes have been proposed for this field of activity and Measurement Canada will continue using accredited organizations to reverify meters.

### **2.2.6- Installation inspection**

Measurement Canada, with the help of its regional inspection personnel, inspects electricity and gas measurement installations whenever any incidence of measurement errors is high.

The nature of certain electricity and gas measurement installations is such that they have to be inspected periodically. It's important to note that we are not talking about residential consumer installations but rather energy transformation and hook-up stations. Gas volumes are very large in this context. This jurisdiction does not apply to other measuring devices that fall under the jurisdiction of the *Weight and Measures Act*<sup>17</sup>.

Measurement Canada is ready to evaluate using the Alternative Service Delivery Mechanisms (ASD) for this activity<sup>18</sup>. This means that Measurement Canada is willing to no longer intervene directly in this jurisdiction and is willing to entrust it to outside organizations. This could be done among others through the Accreditation Program used for the initial verification and re-verification of meters.

### **2.2.7- Product inspection**

The products and services that are exchanged based on measurements are inspected periodically in order to make sure that they're measured in accordance with laid-down tolerance levels. Products are generally inspected based on specific products/industries, with an emphasis on problematic products/industries. This applies only to the measurement of products that fall under the jurisdiction of the *Weight and Measures Act* and does not apply to natural gas<sup>19</sup>.

### **2.2.8- Investigation of complaints**

Measurement Canada, through its regional inspection personnel, carries out investigations of complaints and informs the parties involved of the results of that inquiry, including corrective measures, when necessary<sup>20</sup>.

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<sup>16</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 20; Benoît MONTPETIT, Auditor for Measurement Canada, interview done in Montreal on July 29th 2002.

<sup>17</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 20.

<sup>18</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 17.

<sup>19</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 20.

<sup>20</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 20.

Measurement Canada intends to continue intervening directly in these matters and the natural gas sector review team has clearly stated that the role played by Measurement Canada in this area is non negociable<sup>21</sup>.

### **2.2.9- Settlement of disputes**

Measurement Canada, with the help of its regional inspection personnel, carries out investigations into disputes and regulations, in accordance with the dispute settlement procedures by virtue of articles 23 and 24 of the *Electricity and Gas Inspection Act*. This process is used when a buyer or seller of electricity or gas is unhappy with the meter or installation measurements and he cannot settle the dispute with the other party. This jurisdiction does not apply to the measurement of products that fall under the jurisdiction of the *Weight and Measures Act*<sup>22</sup>.

Measurement Canada intends to continue directly intervening in these matters and the natural gas sector review team has clearly stated that the role played by Measurement Canada in this area is non negociable<sup>23</sup>.

### **2.2.10- Accreditation of organizations that are qualified to inspect approved devices**

Organizations can receive accreditation to perform for Measurement Canada the initial verification, the verification and the certification of weighing and measuring devices used in trade if they meet the program requirements<sup>24</sup>. The description of the Accreditation Program is under section 2.1. No changes to this Accreditation Program have been proposed, neither by Measurement Canada or other intervening parties.

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<sup>21</sup> MEASUREMENT CANADA, *Examen du secteur commercial du gaz naturel*, Ottawa, Mesures Canada, 2002, 17.

<sup>22</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 20.

<sup>23</sup> MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 17.

<sup>24</sup> MEASUREMENT Canada, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002, 21.

This summarizes the trade measurement monitoring activities of Measurement Canada. This description of course is a synopsis and does not describe the strategies of the organization and does not do an inventory of the regulations for which the organization is responsible. In the next section, American regulations will be discussed and will use the same descriptive grid.

## **3- REGULATING NATURAL GAS MEASUREMENTS IN THE UNITED STATES**

Comparing regulating practices pertaining to natural gas trade measurements enables us to put Canadian practices in perspective and to find interesting solutions to better protect consumers. This kind of study also enables us to evaluate the different proposals put forth by the sector review participants as well as Measurement Canada's strategies for all sector reviews.

It's important to note that there is no American central organization equivalent to Measurement Canada that is responsible for regulating natural gas meters. The federal and state governments are jointly responsible for regulating natural gas measurements. Its application varies from state to state and differs from Canada with the combined use of standards and regulations, depending on the jurisdiction. In certain states, authorities use federal standards to implement their regulations while other states don't mention them. Furthermore, American regulations are different in the sense that the federal government develops standards and state governments develop regulations.

In the United States, the *Public Utility Commissions* or *Public Service Commissions* are generally responsible for making sure that the standards developed by the *National Institute of Standards and Technology* (NIST) are respected in matters of types of meters, meter approval, inspection or supervision of meter inspections and the handling of disputes between consumers and natural gas suppliers. Each state can apply the regulations for which it's responsible in a different manner. It's also important to note that the state has the choice of applying federal standards in matters of meter specifications. For example certain states can use the standards of the *American National Standards Institute* (ANSI) instead of those of the NIST. Before we go any further it's important to briefly describe the organizations responsible for implementing these standards. The first is governmental, whereas the second and the third are private, non-profit organizations.

## **3.1- The organizations responsible for implementing standards**

### **3.1.1- The National Institute of Standards and Technology (NIST)**

The *National Institute of Standards and Technology* (NIST) has statutory responsibilities as to cooperation between the states in order to make laws and weight and measurement methods of inspection uniform. Established in 1901 the NIST is a government organization that falls under the jurisdiction of the *US Commerce Department's Technology Administration*. This organization's mission is to develop and promote measurement standards and technology in various applications. The NIST carries out this mission with four programs. One of these programs is the *NIST Laboratories* and aims at doing studies in various areas to improve the technological infrastructure in the United States<sup>25</sup>. It is through this program that standards pertaining to natural gas measurements are implemented.

The NIST laboratories answer the industry's and federal public entites' needs in matters of measurement methods, tools, data and technology as well as the needs of other government levels (states, counties, municipalities) and this, in a wide variety of scientific areas. One of these laboratories is called *Technology Services*, and provides a variety of products in collaboration with federal government agencies, national measurement institutes, state and local governments and the private sector<sup>26</sup>.

The NIST provides assistance to the *National Conference on Weights and Measures* (NCWM) in matters of writing measurement standards. The NIST also provides technical assistance to the states in matters of interpreting and applying the specifications of the

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<sup>25</sup> NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *General Information*, Website: [http://www.nist.gov/public\\_affairs/general2.htm](http://www.nist.gov/public_affairs/general2.htm).

<sup>26</sup> NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *NIST Laboratories*, Website, [http://www.nist.gov/public\\_affairs/labs2.htm](http://www.nist.gov/public_affairs/labs2.htm).

*Technology Handbook 44 “Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices* <sup>27</sup>.

The implementation of these standards is only one of the NIST’s activities. This organization also performs research and development activities, provides technical and business assistance to small manufacturers and promotes quality programs to businesses and public institutions. For all of these activities, the NIST has a budget of \$819 million, employs about 3 000 scientists, engineers, technicians as well as support and administrative personnel. Furthermore, around 1 600 guest researchers complete NIST activities and develop partnerships with 2 000 specialists from different manufacturing industries <sup>28</sup>.

### **3.1.2- The National Conference on Weights and Measures (NCWM)**

The *National Conference on Weights and Measures* (NCWM) is a private non-profit organization sponsored by the NIST for the partial implementation of the governmental organization’s statutory responsibility in matters of collaboration with the states, so that the laws and weight and measurement inspection methods are uniform. The NCWM’s role is more important for devices other than gas meters, for example in the food industry, but it still plays a role in that area as well. The NCWM carries out its mission with the help of four committees :

1. *Spécifications & Tolerances Committee* : this committee develops the technical and tolerance standards for measuring devices used in trade, that are published in the *Technology Handbook 44 “Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices* .
2. *Laws and Regulations (L&R) Committee*: this committee develops and interprets the laws and uniform regulations and inspection and regulation standards of the net quantity sold. The results of the committee’s work are published in the *NCWM*

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<sup>27</sup> SUITER, Richard, National Institute of Science and Technology, e-mail received on August 5th 2002.

<sup>28</sup> NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *General Information*, Website: [http://www.nist.gov/public\\_affairs/general2.htm](http://www.nist.gov/public_affairs/general2.htm).

*Handbook 130, « Uniform Laws and Regulations », which includes the recommendations as to the adoption of legal metrology regulations by the states.*

3. *Administration and Public Affairs (A&P) Committee*: this committee studies the problems related to consumers and security and implements measures that aim at sensitizing the public to the activities surrounding weights and measures.
4. *National Type Evaluation Committee*: this committee supervises the *National Type Evaluation Program* (NTEP) program. The latter will be explained further on in the section pertaining to the approval of measuring devices. This committee establishes the purpose and the objectives as well as the operational policies and program procedures. Furthermore, the committee authorizes the participation of laboratories and sponsors technical sub-committees in order to develop testing procedures and evaluation criteria<sup>29</sup>.

The NCWM's decision-making process is based on a consensus from regulatory organization and industry representatives. In general, the points on the agenda are provided by NCWM regional associations, of which state regulatory organization representatives can be a part. This does not exclude items submitted by individual parties<sup>30</sup>.

This organization specializes in trade measurements and recruits members in regulatory measuring public organizations and private organizations. The 3 400 members (annual membership cost: \$50 for members of government and \$65 for industry representatives) have the privilege of having access to the latest information in matters of trade measurements and of being heard during discussions surrounding weights and measures in the organization<sup>31</sup>.

We will see later how the NCWM is involved in the management of natural gas measurements in the United States.

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<sup>29</sup> NATIONAL CONFERENCE ON WEIGHTS AND MEASURES, *NCWM: The Organization*, Website, <http://www.ncwm.net/organization.html>.

<sup>30</sup> NATIONAL CONFERENCE ON WEIGHTS AND MEASURES, *NCWM: The Decision-Making Process*, Website, <http://www.ncwm.net/process.html>.

<sup>31</sup> NATIONAL CONFERENCE ON WEIGHTS AND MEASURES, *Join NCWM Today*, Website, <http://www.ncwm.net/join.html>.

### **3.1.3- The American National Standards Institute (ANSI)**

The *American National Standards Institute* (ANSI) is the main standardizing organization in the United States. Established in 1918, this private non-profit organization administers and co-ordinates the voluntary standardizing process in the United States and the conformity evaluation system in many jurisdictions, such as natural gas. The mission of this organization is to promote both the global competitiveness of businesses and quality of life by promoting voluntary standards and conformity evaluation systems<sup>32</sup>. The ANSI not only manages all that relates to standards in the United States but also has a great influence on standards all over the world.

Contrary to the Canadian Standards Association, which the Canadian Gas Association wants to use to implement meter specifications, the ANSI is not regulated by a government organization such as the Standards Council of Canada. The ANSI is therefore more private than the Canadian Standards Association, even if the latter is also a non-profit organization.

The membership is mixed, although mostly composed of industry representatives. Members are divided among four councils, each one bringing together a category of participants.

- 1- The *Company Member Council* (CMC) represents the interests of the American industry pertaining to defining ANSI policies. The council examines global questions in relation to the standardization and conformity evaluation, issues policy recommendations to the Directing Committee and committees and recommends candidates to become members of the Management Committee<sup>33</sup>.
- 2- The *Government Member Council* (GMC) organizes a discussion forum on government standards and conformity evaluation that have a relationship to the ANSI and its

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<sup>32</sup> AMERICAN NATIONAL STANDARDS INSTITUTE, *About ANSI*, Site Web, <http://www.ansi.org/public/about.html>.

<sup>33</sup> AMERICAN NATIONAL STANDARDS INSTITUTE, *Company Member Council Executive Committee*, Site Web, [http://www.ansi.org/rooms/room\\_8/](http://www.ansi.org/rooms/room_8/).

- members. Representatives from practically all federal ministries are part of this committee<sup>34</sup>.
- 3- The *Organizational Member Council* (OMC) represents professionals, chambers of commerce, standard development experts and people from universities. The role played by this council consists in giving opinions to the ANSI Management Committee pertaining to policies, organizational aspects and priorities in terms of standards, authentication and conformity evaluations<sup>35</sup>.
  - 4- The *Consumer Interest Council's* (CIC) objectives are to make the representation of consumer interests easier, pertaining to the voluntary standards implementation process and to improve the efficiency and the credibility of the ANSI. This council brings together recognized consumer group representatives, manufacturers, retailers, distributors, councils that represent the industry and the government<sup>36</sup>. According to article 5.02.5 of the ANSI regulations, the *Consumer Interest Council* will attempt to maintain a reasonable balance between these groups. Not more than one *Consumer Interest Council* member can be employed by the same company, organization, service or agency. In accordance with available resources, the *Consumer Interest Council* will favor educating consumers on ANSI activities, the role of standards and calibration and the participation of consumers in these activities and the activities of standard development organizations<sup>37</sup>.

This structure, which at a first glance seems fair to the entities who take part in the ANSI, advantages the industry and disadvantages consumer groups. By recommending candidates from the ANSI Management Committee, the *Company Member Council* has the power to influence the standard development process. Furthermore, industry representatives

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<sup>34</sup> AMERICAN NATIONAL STANDARDS INSTITUTE, *Government Member Council*, Site Web, [http://www.ansi.org/rooms/room\\_51/](http://www.ansi.org/rooms/room_51/).

<sup>35</sup> AMERICAN NATIONAL STANDARDS INSTITUTE, *Organization Member Council*, Site Web, [http://www.ansi.org/rooms/room\\_20/](http://www.ansi.org/rooms/room_20/).

<sup>36</sup> AMERICAN NATIONAL STANDARDS INSTITUTE, *Consumer Interest Council*, Site Web, [http://www.ansi.org/rooms/room\\_7/](http://www.ansi.org/rooms/room_7/).

<sup>37</sup> AMERICAN NATIONAL STANDARDS INSTITUTE, *American National Standards Institute Constitution and By-Laws*, Site Web, [http://www.ansi.org/public/library/ansi\\_proc/bylaws/cic.html](http://www.ansi.org/public/library/ansi_proc/bylaws/cic.html).

participate in the *Consumer Interest Council*. As for consumer groups, they only constitute one of the groups that participate in the *Consumer Interest Council*. Furthermore, the *Consumer Interest Council* legitimizes the standardizing process and educates consumers rather than influencing the implementation of standards.

As we will see in the following section, the standardizing organizations take on the role of supervisor of natural gas measurement in the United States.

## **3.2- Description of the natural gas measurement jurisdictions**

As previously mentioned, the federal government and the states share the responsibility of supervising natural gas trade measurements. By this we mean supervision rather than setting up regulations because certain activities are regulated by standards and others by the states. Furthermore, each state implements its own regulations. To illustrate these differences, we will use three states as an example: New York, California and Florida.

### **3.2.1- Developing metrological standards**

In the United States, the *National Institute of Standards and Technology* (NIST) annually publishes a standard, i.e. the *Technology Handbook 44 “Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices”*. This document includes a set of standards for different measuring devices, such as scales in food stores, water meters or gas meters. Whereas the NIST publishes this standard, the latter is developed and adopted annually by the *Specifications & Tolerances Committee* of the *National Conference on Weights and Measures* (NCWM), the description of which you will find in section 3.2.1.2.

Section 3.33 – *Hydro-Carbon Gas Vapor-Measuring Devices* of the *Technology Handbook 44* (Please refer to appendix 1) defines the standards for gas meters. These are pretty specific and are as much for the manufacturing of gas meters as for their use. The standard includes the following elements:

- the designing of recording and measurement indicating elements ;
- the designing of elements used to implement the measurement ;
- the marking of certain elements of information such as the limit of use, the measuring unity (cubic meters or cubic feet), the existence of a temperature compensator and the information as to the identity of the manufacturer;
- the meter testing procedures ;
- the acceptable margin of error ;
- the correction rate as per altitude ;
- the necessity for corrections as per temperature ;
- the frequency of verifications after the meter has become operational ;
- the elements that have to be included in invoicing (date of meter reading, correction factor as per altitude, the volume of gas billed, fees other than those required for gas volume and the total amount billed) <sup>38</sup>.

This standard is generally used by the organizations in charge of approving meter types. However, it's not the only one to be used and the ANSI standards are also used. For example, the California *Public Utilities Commission* regulations require that all orifice meters be manufactured and installed in accordance with the guidelines specified in the ANSI/API 2530 standard <sup>39</sup>.

These standards, implemented by the NIST and the ANSI do not specify certain requirements, such as the accuracy of meters, which are implemented by the states. California has set up an accuracy standard for meters in this way. This standard stipulates

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<sup>38</sup> NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *NIST Handbook 44 – 2002 Edition. Specifications, Tolerances, And Other Technical Requirements for Weighing and Measuring Devices*, Section 3.33 - Hydrocarbon Gas Vapor Measuring Devices, Website, <http://ts.nist.gov/ts/htdocs/230/235/h4402/hydro.pdf>.

<sup>39</sup> PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, *Standards for the Gas Service in the State of California*, Revised April 8 1989, Website, <http://www.cupc.ca.gov/PUBLISHED/Graphics/641.PDF>, 8.

that diaphragm meters have to read between 1 % above and 2 % below the real measurement<sup>40</sup>. As for the regulations of the state of Florida, they stipulate that diaphragm meters must have an accuracy of more or less 1 %<sup>41</sup>.

### **3.2.2- Traceable measurement standards**

For the United States overall, traceable measurement standards falls under the jurisdiction of the *National Institute of Standards and Technology* (NIST), more specifically the *NIST Laboratories* program. One of these laboratories, *Technology Services*, supplies a variety of products in collaboration with federal government agencies, national measurement institutes, local governments and the private sector<sup>42</sup>.

The *Office of Measurement Services* (OMS) is part of the *NIST Laboratories Technology Services* program. The OMS is responsible for applying NIST policies in matters of traceable measurement standards. This policy consists of the following :

- Develop, maintain and disseminate national measurement standards for the basic measurement quantities and for many derived measuring quantities;
- Establish the rate of uncertainty in measurement standards;
- Supply NIST customers with the tools they need to establish a tracing of measurement results;
- Supply NIST customers with the tools necessary to answer claims in relation to the tracing done by their partners<sup>43</sup>.

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<sup>40</sup> PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, *Standards for the Gas Service in the State of California*, Revised April 8 1989, Website, <http://www.cupc.ca.gov/PUBLISHED/Graphics/641.PDF>, 8.

<sup>41</sup> FLORIDA PUBLIC SERVICE COMMISSION, *Rules of Florida Public Service Commission*, Chapter 25-7 – Gas Service, Website, <http://www.psc.state.fl.us/rules/Chap07.pdf>, 7-31.

<sup>42</sup> NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *NIST Laboratories*, Website, [http://www.nist.gov/public\\_affairs/labs2.htm](http://www.nist.gov/public_affairs/labs2.htm).

<sup>43</sup> NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *Traceability – NIST Policy and Supplementary Materials*, Website, <http://www.nist.gov/traceability/>.

This tracing policy is applied through three programs: the *Standard Reference Materials* program, the *Calibration* program and the *Standard Reference Data* program. According to the NIST, the first two programs are the most important ones and they are the ones that have the most success in measurement tracing in the world. These programs aim at meeting the measurement standard tracing needs to the national measurement standards of NIST customers, i.e. local governments, states, federal agencies, businesses and members of the scientific community. The measurement services supplied by the OMS therefore provide an expertise to their customers in matters of legal metrology<sup>44</sup>.

### **3.2.3- Regulating the devices used for meter testing**

Regulating the devices used for meter testing is done by the states. For the three states used in our study, the commission responsible for public utilities is in charge of determining these regulations.

*Florida Public Service Commission* regulations stipulate that each natural gas distributor has to possess, maintain and have access to bell-type testing equipment with a capacity of at least five cubic feet, or another device approved by the Commission's *Division of Safety & Electric Reliability*. These regulations set the accuracy of the testing devices to more or less 0,5 %. Furthermore, the accuracy of any device used for meter testing has to be determined in accordance with the procedures of the *American Gas Association's Gas Measurement Manual : Meter Proving Part No. Twelve, 1978 Edition*<sup>45</sup>.

*Public Utilities Commission of the State of California* regulations go further than those in Florida. They include the following elements:

- Every natural gas distributor has to have at least one device to test measuring devices for diaphragm meters. The type of device has to be approved by the Commission and the margin of error cannot exceed 0,5 %.

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<sup>44</sup> NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY OFFICE OF MEASUREMENT SERVICES, *Office of Measurement Services*, Website, <http://ts.nist.gov/ts/hdocs/230.htm>.

<sup>45</sup> FLORIDA PUBLIC SERVICE COMMISSION, *Rules of Florida Public Service Commission*, Chapter 25-7 – Gas Service, Website, <http://www.psc.state.fl.us/rules/Chap07.pdf>, 7-31.

- Every natural gas distributor using orifice meters or any large capacity meter has to determine their accuracy in accordance with industry standards and practices.
- A Commission representative will from time to time determine the accuracy of devices as well as the operating methods in matters of meter testing.
- The testing and calibrating devices used by gas distributors have to be traceable to the NIST measurement standards.
- Companies that test and repair meters for other companies have to give their test results to the Commission. Furthermore, the reports have to contain the name of the organization that performs the tests and repairs, as well as the type and characteristics of the tested meters, the authentication of the meter testing equipment by a recognized government agency and a copy of the annual test recording document <sup>46</sup>.

### **3.2.4- Approving new measuring devices**

Approving new meter types is done in collaboration between the federal level and the states. At the federal level, the *National Conference on Weights and Measures* (NCWM) oversees the *National Type Evaluation Program* (NTEP) and has adopted regulations in relation to this program, i.e. the *Uniform Regulation for National Type Evaluation* <sup>47</sup>.

These regulations apply to all measuring devices, the standards of which are specified in the *Handbook 44, " Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices "*. Gas meters are included in these devices. Type approvals are made through this program and these regulations refer to these standards. The tests done on new types of devices have to be performed based on those standards.

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<sup>46</sup> PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, *Standards for the Gas Service in the State of California*, Revised April 8 1989, Website, <http://www.cupc.ca.gov/PUBLISHED/Graphics/641.PDF>, 9-10.

Further than type evaluations, this program also issues authentication certificates that are stamped on the devices that are tested. These tests are performed by the state laboratories that are recognized as participating laboratories by this program. To be accepted as a participating laboratory, state laboratories have to be recognized by the NIST *State Measurement Laboratories* inspection program<sup>48</sup>.

The objective of the *Uniform Regulation for National Type Evaluation* is also to encourage the states to use the *National Type Evaluation Program* to approve meters<sup>49</sup>. However, states are not forced to have their meters approved by this program or to follow the guidelines of the *Uniform Regulation for National Type Evaluation* or those of the NIST *Handbook 44*. States can have their own meter approval program, as is the case in New York, where regulations stipulate that all gas meters used by the state have to be approved by the *New York State Public Service Commission*<sup>50</sup>.

### **3.2.5- Initial verification of new devices**

In the United States, regulations relating to initial verifications are determined by the states. For the states used in our study, the initial verification is done by manufacturers or natural gas distributors. None of the states we studied mentions the existence of an Accreditation Program for companies who do inspections, but two states (California and Florida) require that companies keep the data pertaining to the tests they perform.

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<sup>47</sup> NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *Uniform Regulation for National Type Evaluation*, Website, <http://ts.nist.gov/ts/htdocs/230/235/h130-02/ntepreg.pdf>.

<sup>48</sup> NATIONAL CONFERENCE ON WEIGHTS AND MEASURES, *NCWM: A Far-Reaching Mission*, Website, <http://www.ncwm.net/mission.html>; NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *Uniform Regulation for National Type Evaluation*, Website, <http://ts.nist.gov/ts/htdocs/230/235/h130-02/ntepreg.pdf>, 125-126.

<sup>49</sup> NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *Uniform Regulation for National Type Evaluation*, Website, <http://ts.nist.gov/ts/htdocs/230/235/h130-02/ntepreg.pdf>, 125.

<sup>50</sup> STATE OF NEW-YORK PUBLIC UTILITIES COMMISSION, *Public Utilities Commission Consumer Guide: Meter Reading*, Website, <http://www.dps.state.ny.us/meter.html - accuracy>.

### **3.2.5.1- California**

In California, the *Public Utilities Commission* standards vary depending on the type of meter. For diaphragm meters, standards don't stipulate the necessity tests but stipulate that each meter has to be in good working condition and has to be adjusted to make sure that the margin of error does not go 1 % over or 2 % below the reading on the measurement console. For other meter types, standards require that an initial verification be done in accordance with standards and practices accepted by the industry. Inspections have to be done and adjustments made by the gas distributor when a new meter is installed for a customer<sup>51</sup>. There is no sampling program for an initial verification.

California standards don't mention what conditions a gas distributor has to meet to be able to perform tests, with the exception of requirements relating to the equipment used to perform them (Please refer to section 3.2.3). California standards don't provide for a sampling program for meters because all meters have to be tested or adjusted when they're ready to become operational. There is no Accreditation Program, nor is there a verification audit or a product audit for the companies who perform the tests<sup>52</sup>.

However, California standards stipulate that the data pertaining to meters and the tests they are subjected to be recorded. This recording is valid for the initial verification, the reverification and the verification asked for by the consumer. First of all every natural gas distributor has to record and keep all the data pertaining to the tests performed on each meter, whether it's for the initial verification, reverification or for any other reason why a test is performed. The information such as test dates, the location where the test was done, the name of the inspector who performed the test, the test result or any other additional information required by the Commission has to be recorded and kept. Second of all, when a test is performed, the following information has to be recorded and kept: The reason behind the test, the meter reading when the meter is removed from the field to be tested and any

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<sup>51</sup> PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, *Standards for the Gas Service in the State of California*, Revised April 8 1989, Website, <http://www.cupc.ca.gov/PUBLISHED/Graphics/641.PDF>, 8.

other information needed to check on the method employed and the results obtained. This information has to be kept for two years. Finally, companies have to keep the data pertaining to all meters, such as the type, their capacity, date of purchase, where it was installed, the date and the results of the tests they are subjected to. This data has to be kept for one year after it's sold, no longer operational or destroyed<sup>53</sup>.

### **3.2.5.2- Florida**

Florida regulations do not require sampling but an initial verification of all meters by manufacturers is compulsory. The meters must have an accuracy rate that meets the requirements of the *Florida Public Service Commission* (more or less 1 %). Once they have been inspected by manufacturers, the meters can become operational once again. However, the meters cannot be damaged during the delivery to the gas distributor. If there are any apparent damages, a sample of at least 10% of meters has to be inspected (regulations do not stipulate who has to do the inspection). If one or various meters in the sample don't meet the Commission's accuracy requirements, the whole batch has to be inspected and the faulty meters have to be recalibrated. When a meter is opened up to be repaired, it has to be adjusted so that the accuracy is more or less 1 %. Any meter that is installed has to have been verified in the last twelve months (including the inspection done by the manufacturer). Regulations stipulate also that all meters have to be sealed when they are tested<sup>54</sup>.

For the regulations, like California, Florida regulations don't provide for an Accreditation Program or audits for companies that inspect meters. The Florida Commission uses the same means than in California to support the initial verification done by companies, i.e. the obligation of keeping the data pertaining to meters and their verification. Regulations are

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<sup>52</sup> PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, *Standards for the Gas Service in the State of California*, Revised April 8 1989, Website, <http://www.cupc.ca.gov/PUBLISHED/Graphics/641.PDF>, 8.

<sup>53</sup> PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, *Standards for the Gas Service in the State of California*, Revised April 8 1989, Website, <http://www.cupc.ca.gov/PUBLISHED/Graphics/641.PDF>, 10.

<sup>54</sup> FLORIDA PUBLIC SERVICE COMMISSION, *Rules of Florida Public Service Commission*, Chapter 25-7 – Gas Service, Website, <http://www.psc.state.fl.us/rules/Chap07.pdf>, 7-32, 7-34.

similar to those in California in these matters and are valid for the initial verification, reverification and the verification requested by the consumer. First of all, the Commission demands that each meter be registered, including the data as to the date of purchase, the identification number, the capacity, the date on which it was installed or removed for its last three locations. This data has to be kept until the meter is destroyed or definitely removed from service. Second of all, regulations stipulate that the data from the original test (when obtained from the manufacturer) for each meter has to be kept until it is retested. This data has to be complete enough to identify the meter in question, indicate the reason behind the last test, the date and the meter reading when it is removed from service for testing purposes, the accuracy rate during the test and when it's serviced once again, the repairs if applicable and the person who performed the test. Thirdly, gas distributors have to, upon request, present a summary of test results. Finally, gas distributors have to present an annual report to the Commission's *Division of Safety and Electric Reliability*, including the number of installed meters according to the date of servicing, the number of meters tested, the number of meters for which the compulsory test date is no longer valid and the reimbursement given to customers<sup>55</sup>.

### **3.2.5.3- New York**

We were not able, with the research we did, to find the complete set of regulations for the state of New York. However, it was possible for us to find out that the *Public Service Commission* handles the initial meter verification before it's installed. However, contrary to the regulations in California and Florida, those in New York provide for a sample of meters that have to be inspected. It wasn't possible to find out the content of the sampling program for this state<sup>56</sup>.

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<sup>55</sup> FLORIDA PUBLIC SERVICE COMMISSION, *Rules of Florida Public Service Commission*, Chapter 25-7 – Gas Service, Website, <http://www.psc.state.fl.us/rules/Chap07.pdf>, 7-8.

<sup>56</sup> STATE OF NEW-YORK PUBLIC UTILITIES COMMISSION, *Public Utilities Commission Consumer Guide: Meter Reading*, Website, <http://www.dps.state.ny.us/meter.html - accuracy>.

### **3.2.6- Meter reverification**

Regulations relating to meter reverification is determined by the states. California standards stipulate that all meters have to be reverified every ten years. However, a gas distributor can, under certain conditions, present a sampling plan instead of reverifying each meter. The sampling methods have to meet statistical sampling principles<sup>57</sup>. Reverifications are done by gas distributors and the monitoring procedures used by the *Public Utilities Commission* are the same than for the initial verification (Please refer to section 3.2.5.1).

In Florida, reverifications are done by gas distributors and the *Public Service Commission* uses the same means to monitor reverifications than initial verifications (please refer to section 3.2.5.2). In that state, regulations vary according to meter types. For diaphragm meters with a maximum capacity of 250 cubic feet per hour, distributors can develop a statistical sampling program. This program has to be approved by the Commission's *Division of Safety and Electric Reliability* and must include the sampling method as well as the test periods. All meters with this capacity that are not included in a sampling program have to be reverified at least every ten years. All meters with a capacity that varies between 250 and 2,500 cubic feet per hour have to be reverified according to the procedures of the *American Gas Association's Gas Measurement Manual : Meter Proving Part No. Twelve, 1978 Edition*. The reverifications have to be done at least every ten years. Meters with a capacity of more than 2,500 cubic feet have to be reverified in accordance with the same procedures as the previous ones but have to be reverified every five years<sup>58</sup>.

The research we did didn't enable us to uncover the complete set of regulations for the State of New York. However, it was possible to find out that the *Public Service Commission* supervises the work done by laboratories and meter shops that do the

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<sup>57</sup> PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, *Standards for the Gas Service in the State of California*, Revised April 8 1989, Website, <http://www.cupc.ca.gov/PUBLISHED/Graphics/641.PDF>, 8-9.

<sup>58</sup> FLORIDA PUBLIC SERVICE COMMISSION, *Rules of Florida Public Service Commission*, Chapter 25-7 – Gas Service, Website, <http://www.psc.state.fl.us/rules/Chap07.pdf>, 7-32.

reverification. It wasn't possible for us to find out if there's a sampling program for meter reverifications<sup>59</sup>.

### **3.2.7- Inspecting meter installations**

We were not able to find any regulations similar to those of Measurement Canada for meter installations where there is a high incidence of meter reading errors.

### **3.2.8- Investigations of complaints and dispute settlements**

Regulations relating to these activities are determined by the states. California standards stipulate that when a customer requests a meter verification, the latter is performed by the gas distributor. Each company can charge the fee that is usually paid for such a task. However, if a verification is required by the *Public Utilities Commission*, the distributor cannot charge a fee to the customer. When a verification requested by a customer has been performed, the customer cannot ask for another verification for at least six months after that. When a verification is taking place, the customer has the right to be there or ask to be represented by a person other than an employee of the gas distributing company or the Commission. Finally, the standard provides for the writing of a report for each verification requested by a customer<sup>60</sup>. California does not protect consumers because the regulations in place seem to keep distributors from having to perform too many verifications. First of all, verifications are done only by the company without the possibility of appeal to the Commission or a neutral third party in case of dispute. Second of all, the consumer has to pay a fee that is not reimbursable even if the test indicates that the meter was incorrect. Finally, no test can be done before six months following the previous test and this can be a clear disadvantage for the consumer if the meter were to read too quickly during this period.

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<sup>59</sup> STATE OF NEW-YORK PUBLIC UTILITIES COMMISSSION, *Public Utilities Commission Consumer Guide: Meter Reading*, Website, <http://www.dps.state.ny.us/meter.html> - accuracy.

<sup>60</sup> PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, *Standards for the Gas Service in the State of California*, Revised April 8 1989, Website, <http://www.cupc.ca.gov/PUBLISHED/Graphics/641.PDF>, 10-11.

Regulations in Florida are more favorable to consumers than those used in California. First of all, the consumer has no fee to pay if the test is performed by the gas distributor and if no test has been performed in the last twelve months. If a test was performed in that period, the consumer has to pay a deposit of \$15, the amount of which will be reimbursed to him if the test indicates that the meter reading was unfavorable to him, beyond the 1% tolerance as per regulations. It's also possible for the consumer to witness the test performed by the distributor or to send a representative. The regulations also state that a consumer can ask a company independent from the gas distributor to perform the test. In that case the consumer has to pay for the test, the cost of which will be reimbursed only if the test shows that the reading is quicker by more than 1% than what is actually used. Finally, regulations provide for a meter reading supervised by the Commission, in case of a dispute between the consumer and the gas distributor <sup>61</sup>.

The state of New York's regulations stipulate that the employees of the *Public Service Commission* can perform the tests themselves when consumers ask. It is not mentioned whether or not the consumer has to pay a fee or not for such a verification <sup>62</sup>.

### **3.2.9- Conclusion of this section**

American regulations in matters of natural gas measurement differ from those in Canada on a few points. First of all, they are more decentralized because responsibilities are divided between the federal level and the state level. This larger decentralization is likely to bring about disparities between the states and our study of three states enabled us to find a few, which can make the protection of consumers uneven from one region to the other.

Also, regulations are more standard oriented than in Canada, the *Handbook 44* being a good example. This is especially the case at the federal level, but California uses standards more so than regulations to monitor gas measurements. It wasn't possible for us to find out if

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<sup>61</sup> FLORIDA PUBLIC SERVICE COMMISSION, *Rules of Florida Public Service Commission*, Chapter 25-7 – Gas Service, Website, <http://www.psc.state.fl.us/rules/Chap07.pdf>, 7-33, 7-34.

<sup>62</sup> STATE OF NEW-YORK PUBLIC UTILITIES COMMISSION, *Public Utilities Commission Consumer Guide: Meter Reading*, Website, <http://www.dps.state.ny.us/meter.html - accuracy>.

the NIST American federal standards are adhered to by the states and if the desire by the central government to make regulations uniform is shared by the states.

State regulations and standards relating to gas measurement provide for a greater role for gas distributors and the commissions in charge of overseeing the market have more limited means of intervention. There is no Accreditation Program nor any surveillance or product audits to support the actions of companies in matters of meter verification. Companies have to keep data pertaining to meters and their verification but this is much more limited than the Measurement Canada Accreditation Program. The state of New York seems to better protect consumers thanks to a greater involvement by the Commission but the other two states offer customers of gas distributors a more limited protection that is far inferior than the one offered to Canadian consumers.

After this study of American practices in matters of gas measurement regulations, we will now return to Canadian methods. The opinion of Canadians as per natural gas measurement regulations will be looked at with the help of the results of a cross-Canada survey.

## **4- THE RESULTS OF THE CROSS-CANADA SURVEY**

One of the main objectives of the Measurement Canada natural gas trade sector review is to get the various opinions of the interested parties, i.e. meter manufacturers, companies specialized in repairing and maintaining meters, natural gas distributors and consumers. In order to know the opinions and expectations of consumers better, Option consommateurs called on Environics, a firm specialized in surveys. This firm did a cross-Canada survey and held six discussion groups.

Environics surveyed 2,000 Canadians over 18, between June 18th and July 9th 2002. Among those, 629 used natural gas and were responsible for paying the household gas bill. It's important to note that almost all respondents were from Ontario and Western Canada. This is due to the fact the natural gas is not used a lot in Quebec and almost never used by residential consumers in the Maritimes. This survey is part of the omnibus survey done by Environics in Canada every three months. The purpose is to find out what the level of confidence of Canadians towards their meters is, what are the reasons why they do or don't have confidence in them, their experiences as to how any meter reading problem between them and their gas distributor was handled and their knowledge of Measurement Canada. The questionnaire that was used for the survey is in appendix 2 and the results are in appendix 3.

The results in appendix 3 show the results according to different respondent categories (gender, occupation, income, political opinions, etc.). These categories are used in all omnibus surveys presented by Environics. To simplify our analysis, we will only use the following categories to analyse the level of confidence of consumers : Age, employment status, household income and level of education. We will use these categories for the level of confidence only, because the sample is too small in the other questions and a dependable result was not possible to obtain.

## **4.1- Level of confidence in meters**

The level of confidence of consumers in meters is relatively high, because 33% of respondents have complete confidence in their meters and 50% are somewhat confident in their measuring devices. The level of confidence is seen as relatively high because half of respondents do have a certain amount of confidence in their meters. We noticed that a very small percentage of respondents (6%) have no confidence in their meters.

**Table 1 – Level of confidence in the accuracy of meters**

<b>Level of confidence</b>	<b>Proportion (%)</b>
Completely confident	<b>29</b>
Somewhat confident	<b>56</b>
Not very confident	<b>9</b>
Not confident at all	<b>6</b>

For respondents, age is the factor that most influences their level of confidence in meters. We noticed that the level of confidence tends to go up with age. Only 19% of people between the ages of 18 and 29 have complete confidence in their meters and this number goes up to 45% for people 60 and over, with a constant progression for age groups that fall in between. If we put those that have little or no confidence in their meters together, the proportion decreases with age (24 % for 18 to 29 and 10 % for 60 and over).

Income has little bearing but nevertheless factors in the level of confidence and is superior for respondents with an income of over \$ 60,000. For respondents with an income of between \$ 60,000 and \$ 80,000, 87 % have complete or a lot of confidence in their meters. This proportion is 88% for those with an income of \$80,000 and more. The level of confidence is similar to the average for those with an income of less than \$ 40,000

(between 80% and 84% are completely or somewhat confident), whereas the level of confidence decreases for those respondents with an income between \$ 40,000 and \$ 60,000 (79 % are completely or somewhat confident).

The status of employment and the level of education have very little influence on the level of confidence that respondents have in their natural gas meters. There is a noticeable difference for unemployed people, but the sample (12 people) is too small to enable us to draw any dependable conclusions.

## **4.2- Confidence and non confidence factors**

Option consommateurs wanted to find out the reasons why people have confidence or not in their meter's accuracy. In order to better define these reasons, the people who were surveyed had a choice of answers. The data was put into two categories: Those who are completely or somewhat confident that their meter is accurate and those who have little or no confidence in their meters.

The answers that reflect the confidence of the population as to the accuracy of their meters are the following:

- Have confidence in their meter, have never had any problems;
- Think that the price they pay is regular and reasonable or that their billing is precise;
- Have never given any thought to their meter's accuracy or believe it works properly;
- Know how to read their meter;
- The meter is new or has recently been serviced ;

The following answers were used to reflect the non-confidence of the population as to the accuracy of their meters :

- Have no confidence in their gas distributor, in their invoice or in their meter;

- Their gas bill is too high ;
- Extreme variations and fluctuations in their invoices ;
- Do not know how to read their meter.

Before going any further, it's important to mention that the reasons for trusting and not trusting in the accuracy of meters overlap somewhat. This information is included in the analysis of two sub-groups. This translates on one hand into the inclusion of non-confidence factors in the choice of answers of those people who are completely or somewhat confident that their meters are accurate, and on the other hand in the choice of answers of those people who have little or no confidence in the accuracy of their meters. This overlapping is necessary because the people who have reasonable confidence in their meter's accuracy have reasons why they don't trust it completely and the same goes for those people who don't have a lot of confidence in their meters but trust them a bit just the same. That being said, this overlapping did not yield significant results for those respondents who have little or no confidence in their meters, because the reasons why people have confidence in their meters obtained no more than 5% among the answers in this category. However, this overlapping did give significant results for those people who have complete or reasonable confidence in the accuracy of the meters, as we will see later on in the analysis of the answers for those categories.

#### **4.2.1- Breakdown of answers for those people who have complete or reasonable confidence in their meter's accuracy**

The respondents who have complete or reasonable confidence in their meter gave three main reasons why they have trust it: Have confidence, have never had any problems (19 %) ; consider that the price of their invoice is regular or reasonable or that their bill is precise (18 %) ; have never given any thought to their meter's accuracy or believe that it works properly (17 %). Among the other factors that cause people to trust their meter was being able to read the meter (9 %) and the fact that the meter was new or had recently been serviced (7%). It's interesting to note that 16% of respondents in this group said that they didn't trust their gas distributor, their invoice or their meter. Among the other reasons for

not trusting their meter, not knowing how to read it and the extreme fluctuations in billing were invoked (8%) as well as the high amount of their invoice (4%). The following table summarizes the breakdown of answers among the reasons that were invoked. Please note that it's possible that a few respondents gave more than one answer, because the total breakdown exceeds 100%.

**Table 2 – Reasons given by people who have complete or reasonable confidence in their meter's accuracy**

<b>Reasons</b>	<b>Breakdown (%)</b>
Have confidence, have never had any problems	<b>19</b>
Find their invoice is regular and reasonable or that their billing is precise	<b>18</b>
Have never given any thought to their meter's accuracy or believe that it works properly	<b>17</b>
Know how to read their meter	<b>9</b>
Their meter is new or has recently been serviced	<b>7</b>
Don't trust their gas company, their billing or their meter	<b>16</b>
Extreme variations and fluctuations in invoices	<b>8</b>
Don't know how to read their meter	<b>8</b>
Their gas bill is too high	<b>4</b>

#### **4.2.2- Breakdown of answers for those people who have little or no confidence in their meter's accuracy**

Among the respondents who have little or no confidence in their meter's accuracy, a large number (36 %) invoked the fact that they didn't trust their gas company. The other reasons for not trusting their meter obtained similar results (from 22 % to 24 %). Among the reasons for trusting their meter, only the fact of not thinking about the meter's accuracy and believing it is working properly obtained a significant number of answers (5 %). The following table summarizes the breakdown among the reasons that were invoked. Please note that it's possible that a few respondents gave more than one answer because the total breakdown exceeds 100%.

**Table 3 – Reasons invoked by people who have little or no confidence in their meter's accuracy**

<b>Reasons</b>	<b>Breakdown (%)</b>
Don't trust their gas company, their bill or their meter	<b>36</b>
Extreme variations and fluctuations in their invoices	<b>24</b>
Don't know how to read their meter	<b>24</b>
Their gas bill is too high	<b>22</b>
Have never given any thought to their meter's accuracy or believe it works properly	<b>5</b>
Know how to read their meter	<b>2</b>
Their meter is new or has recently been serviced	<b>1</b>

### **4.2.3- The level of confidence in gas distributors and in invoicing**

The numbers we just gave enable us to draw an obvious conclusion : Consumers have little confidence in gas distributors or in invoicing. This reason was mostly invoked for respondents who have little or no confidence in their meter, even obtaining 16% among those who have complete or reasonable confidence.

Such a conclusion reinforces our support for maintaining the Accreditation Program, the S-A-01 standard and forms of monitoring, such as surveillance and product audits that are included. We oppose any form of laxness in that sense and Measurement Canada must maintain its monitoring role of accredited companies.

## **4.3- Settlement of disputes between consumers and distributors pertaining to natural gas measurement**

Up until now, it would seem that consumers have reasonable confidence in their meters. However, the trust of consumers toward their meters is not the only factor that enables us to verify the level of protection that consumers should benefit from. Sometimes reality is different from consumers' perceptions and this is why we wanted to find out what their experience was after having reported a meter reading problem to their gas distributor, which was the case for 18% of respondents.

We first asked those respondents if their gas distributor had somewhat actively attempted to rectify the situation following their request and how satisfied they were with how the problem had been dealt with. We then asked them questions on Measurement Canada : If they knew this organization and if they had ever considered calling on it to contest their meter measurement.

### **4.3.1- Processing of complaints by gas distributors**

First of all, we asked these people if their gas distributor had given them information as to how much gas they were using as well as information pertaining to their invoice. Among the people who pointed out a measuring problem, 67 % said yes. This proportion is rather low because this can be accomplished during a call to the company's customer service and does not require the use of other employees other than the person who takes the call of the customer who phones to report a problem.

We then asked them if their gas distributor had sent someone to check their meter. 57% of respondents said yes, which is a low percentage. A very small minority (only 4%) of those people who pointed out a problem with their meter were told that maybe they should contact Measurement Canada. Finally, 27% answered yes when we asked them if their gas distributor had taken any other action. Among those, 52 % received a lower invoice and had the mistake rectified, 36 % had their meter replaced, 7 % didn't receive a credit or even saw an increase on their invoice, 3% were ignored and 7 % had right to a form of action not specified in the survey.

**Table 4 – Actions taken by gas distributors when a problem with a customer’s meter is reported**

<b>Action</b>	<b>Yes (%)</b>	<b>No (%)</b>
Explanation as to use of gas and invoicing	<b>67</b>	<b>30</b>
Employee sent to verify the meter	<b>57</b>	<b>41</b>
Suggestion made to contact Measurement Canada	<b>4</b>	<b>96</b>
Other actions	<b>27</b>	<b>73</b>
<b>Nature of other actions</b>	<b>%</b>	
Reduction of invoice and rectification of mistake	<b>52</b>	
Meter changed	<b>36</b>	
Invoice remains the same or increases	<b>7</b>	
Consumer ignored	<b>3</b>	
Other action	<b>7</b>	

We then asked consumers who reported a problem with the reading of their meter how satisfied they were as to how their gas distributor had handled their request. On a scale of 1 to 10<sup>63</sup>, the global rate of satisfaction is 6,1. If we examine this result more closely, we notice that 11 % of respondents were not satisfied at all, 22 % were not very satisfied (grades 2 to 4), 17 % were more or less satisfied (grades 5 to 6), 31 % were reasonably satisfied (grades 7 to 9) and 21 % were completely satisfied.

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<sup>63</sup> A grade of 1 means that the consumer is not satisfied at all and 10 means he is completely satisfied.

**Tableau 5 – Level of satisfaction of consumers with how their gas distributor handled their meter problem**

<b>Satisfaction index (/10)</b>	<b>% of respondents</b>
Total (10)	<b>21</b>
High (7 to 9)	<b>31</b>
Average (5 to 6)	<b>17</b>
Low (2 to 4)	<b>22</b>
Nil (1)	<b>11</b>
<b>Satisfaction index (/10)</b>	<b>6,1</b>

#### **4.3.2- Measurement Canada**

The people who reported a problem with their gas measurement knew very little of Measurement Canada, since only 14% of them knew that this organization can process their complaint if they're not satisfied with how their gas distributor handled it. For respondents who knew about Measurement Canada's role in the processing of complaints pertaining to the use of electricity, only 4% had ever had the intention of complaining to this organization. Therefore, for all the consumers who reported a gas measuring problem, only 0,56 % considered contacting Measurement Canada.

#### **4.4- Conclusion**

Natural gas industry representatives have frequently mentioned the very low number of complaints and rectifications done by Measurement Canada to justify a decrease in the organization's intervention. Yet, when looking at the data from the survey, it seems that the

situation is different. The very low number of complaints is for the most part attributed to the fact that very few consumers who report a gas measurement problem call on Measurement Canada. The data from the survey reveals that among them, only 0,56 % have considered lodging a complaint with the organization. In reality, problems pertaining to measurement problems are more frequent, since 18 % of consumers we asked have already called on their gas distributor to report a problem. Among those, 13 % had their account credited <sup>64</sup>. This means that natural gas measurement problems are more frequent than the gas industry will admit to.

The results of the survey of the actions undertaken by natural gas distributors as well as the level of satisfaction of consumers towards these actions have lead us to observe that consumers who have reported a problem obtain more or less good service and that their satisfaction level is average. This is all the more preoccupying because in a way it confirms the perceptions of natural gas consumers in general towards their distributor, for whom the lack of trust is the main reason for not trusting their gas meter. Furthermore, the fact that consumers know little of Measurement Canada and that very few of them have considered lodging a complaint to this organization, brings us to observe that consumers who wish to report a measurement problem have the impression of being their distributor's captive. Since the level of trust and satisfaction towards natural gas distributors is low and that certain basic actions such as information on the use of gas aren't taken in a third of cases, we consider the situation to be problematic. The lack of information relating to Measurement Canada makes the protection provided by this organization less effective and in that case, Canadian consumers are not as well protected as they should be.

This survey has enabled us to provide the quantitative aspects of the opinions of Canadian consumers as to natural gas measurement. In the next section, we will discuss the qualitative aspects of gas measurement and will take a look at the opinions relating to the changing role of Measurement Canada. These opinions were obtained from the discussion groups.

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<sup>64</sup> Among the consumers who reported a gas measurement problem, 27 % had right to another form of action and among those, 52 % had their account credited.

## **5- ANALYSIS OF THE OPINIONS EXPRESSED DURING THE DISCUSSION GROUPS**

Six discussion groups were set up by Environics. The meetings were held in July 2002 in three Canadian cities : Toronto (July 16th), Calgary (July 18th) and Montreal (July 25th). The people who took part in these discussion groups are responsible for paying their household gas bill and are very interested in questions of public policy. The discussion guide is in appendix 4 and the document the participants received to help them better understand the context is in appendix 5 <sup>65</sup>.

### **5.1- The trade measurement regulatory process in Canada**

#### **5.1.1- How is trade measurement regulated in Canada?**

Practically all the participants believe that meters are regulated in one way or another in Canada. The Toronto participants mentioned that the regulations were federal and provided the name of a few organizations such as *Weights and Measures Canada* and *Measurement Canada* or *The Department of Consumer and Corporate Affairs*. In Montreal and Calgary, the participants mentioned that this responsibility probably fell under the jurisdiction of a federal agency but a few wondered if measuring devices were regulated at the local or provincial level. Two Montreal participants mentioned Measurement Canada because they had been in contact with this organization through their job. A few of the participants from the three cities had seen stickers on the scales in food stores or gas

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<sup>65</sup> The discussion groups dealt with two sector reviews: the natural gas sector review and the retail food sector review. The appendices do not discuss the section on retail food.

pumps. Finally, most of the participants stated that they give no thought to trade measurement and take for granted that their meters are accurate.

Participants felt that the regulatory process should be handled by a Canadian government agency that has the capacity of imposing national standards on meter dependability and quality. They don't want their natural gas distributor or meter manufacturer to have the ultimate authority when it comes to regulating meters because of the conflicts that occur in these matters. The participants mentioned the Enron and WorldCom accounting scandals as an example to justify their lack of trust in the industry's capacity to self-regulate. This impression was the strongest in Toronto, whereas the Calgary participants were more open to the idea of giving more responsibility to the industry in matters of regulation.

### **5.1.2- The reaction to Measurement Canada's role**

When participants learned that Measurement Canada was responsible for regulating natural gas measurement, some of them stated that they had already heard about this organization and that they had seen a Measurement Canada sticker or logo in the past. It's important to mention that people associate Measurement Canada very little with trade measurement regulations in Canada.

When participants read about Measurement Canada's role in the information document that was given to them, they were surprised. A consensus was reached in that they felt it was good to know that a government organization "was keeping an eye on things". Most participants stated that knowing this made them more comfortable as to the accuracy of weights and measures and that it was good to have a "guard dog" to monitor the industry. The participants worried about the possibility that companies would try to cheat and were very happy to know that there was a mechanism in place to keep an eye on them.

Some of the participants were skeptical about Measurement Canada being able to carry out all their duties. They had never seen any Measurement Canada inspectors and they wondered how their regulations were applied. Some wanted to know if they could telephone Measurement Canada if they had questions or complaints pertaining to measuring devices. Certain participants stated that since they took for granted that their

measuring devices were accurate, knowing about Measurement Canada didn't make them more confident than before.

### **5.1.3- Participants' understanding of the trade sector review**

The participants' understanding of the trade sector review varies. A few of them, especially in Montreal, didn't really understand what it meant. They saw it as an internal bureaucratic process that takes place frequently without the public being aware of it. The Toronto and Calgary participants had a better idea of the fact that Measurement Canada has to review its role to adapt to technological changes and to find ways of using its resources more efficiently in a changing world.

## **5.2- The natural gas trade sector review**

### **5.2.1- The attention given to meters and invoices**

Most participants stated that they monitored their gas bill closely, especially in Toronto and Calgary where the fees have fluctuated a lot in the last year. Most consumers paid a lot more attention to the rates they're charged rather than to the chart indicating their meter's reading. Many participants in all three cities stated that they had been overbilled in the past because of incorrect estimates or human error pertaining to the reading of their meter. The participants stated that their concerns had very little to do with the meter itself, especially considering the fact that when they compare their consumption to the previous year, there is very little fluctuation.

Most participants stated that their meter was located outside their home and they almost never looked at it. Most of them don't know how to interpret the numbers on their meter and they never really thought about it before the discussion group was held. A few participants in Montreal mentioned that Gaz Métropolitain has sent them information on how to read their meter. In Calgary, because of the strong fluctuation in fees, the participants were a bit more curious to find out if the reading of their meter had

contributed to the increase in their invoice, even if most agreed that the increase was due to the fees. In Toronto, the current deregulation and the fact that gas companies sell their product door to door has made people more vigilant than before about everything pertaining to their invoice, including their meter.

### **5.2.2- Confidence in the accuracy of meters**

The participants stated that they had great confidence in their meter's accuracy. This is based on the fact that their use of gas seems to be regular and that the meters are built with a simple technology that has little chance of not working properly. Most participants stated that this is the first time they have had to give any thought to this and they took the accuracy of their meter for granted. A few of them were worried about the fact that their meter was very old but they assume nevertheless that their meter works properly. A few participants believe that if their meter should begin to not work properly, it would be noticeable and this would bring about an astronomical increase in the registered consumption. The participants believe very little that a malfunction could cause a very slight increase or decrease that is not very noticeable in the registered consumption. People often mentioned that they had to trust their meters because they had to trust something or that it constitutes an act of faith. The participants stated that they would have confidence in their meter as long as their consumption was within acceptable limits. People trust gas meters more than they do scales in supermarkets for example, because their meter is located at their home and they feel they have some sort of control.

The participants generally agreed to say that it was in the best interest of gas distributors to see to it that meters work properly. However, the participants emphasized that they still have a gut suspicion that their gas distributor could very well not be vigilant enough as to the proper working order of meters. This contradiction was illustrated when certain participants said that their gas distributor was important and it had a reputation to uphold, whereas others worried about the fact that these distributors held the monopoly and that they were not under any pressure to be strict in matters of quality control. The Toronto participants made many negative comments on *Enbridge Consumer Gas* and this seems to make people more skeptical about their gas meter.

The vast majority of participants had never had any disputes and had not heard of any people who had had a dispute over their meter. The only problems were related to gas leaks around their meter.

### **5.2.3- The reaction to the proposed changes as to Measurement Canada's role**

The participants read the document that explains that for the moment, the supervision of meter regulations is shared by Measurement Canada and its Alternative Service Delivery Mechanism. This mechanism provides for the accreditation of organizations, i.e. usually gas distributors. Since the mid 1980s, accredited organizations do the initial verification and the re-verification of meters. These organizations follow standards that combine the elements of the ISO-9002-1994 standard and additional Measurement Canada standards, and are audited periodically. For its part, Measurement Canada alone develops the standards used to approve new types of meters and proceeds to their approval.

The idea that Measurement Canada uses the Alternative Service Delivery Mechanism for delivery of services and that it provides accreditation to organizations in order to develop standards and approve new meter types got a very negative response from participants. The latter want these activities to remain under the jurisdiction of Measurement Canada. The Calgary participants were initially more receptive to the idea of entrusting these activities to accredited organizations as long as the public was well informed and that the organizations were well monitored. In Toronto and especially Montreal, this would mean that Measurement Canada's role would practically be put aside. There is concern that if natural gas distributors are the ones accredited to perform these tasks, no one will protect consumers. Most participants were suspicious of the idea of letting manufacturers approve new meter types and adopt standards.

Before it was even discussed, a few participants spontaneously named the Canadian Standards Association (CSA or ACNOR in french) as an example of an organization they would trust. Awareness of ACNOR is very high with the Toronto and Calgary participants, whereas this is less so in Montreal. This is probably due to the fact that the french term

ACNOR (Association canadienne de normalisation) is not on the CSA logo. People linked the CSA to products that are secure and largely saw it as a near governmental organization associated to products such as hockey helmets. Virtually all of the participants that were familiar with the CSA saw it as having great integrity. The organization was seen as independent from the business world and as being partial to consumers.

When the participants found out that the CSA could possibly be the accredited organization that would be responsible for developing standards for new meter types and also for the approval of new meter types, the reaction of participants was enthusiastic. The public is suspicious when faced with the possibility that natural gas distributors and meter manufacturers would perform these tasks because they believe there is a conflict of interest. The CSA was perceived as a neutral organization, made up of experts, and was seen as being comparable with Measurement Canada as a neutral defender of public interest. If Measurement Canada accredited an organization to develop standards, there would be no better organization to do this than the CSA. Most participants felt that as consumers, their interests would be even better protected than under the status quo if the CSA had a bigger part to play in implementing these standards. For the participants, the global impression they have of the CSA is the following: The organization rigorously tests the products, is independent, inspires confidence and protects consumers.

Nevertheless, most participants insisted on the fact that it is necessary for Measurement Canada to have the final say and to review what the CSA has decided. Certain participants asked how the CSA was financed and wanted to be assured that the organization was truly independent from the industry. A few Montreal participants were worried about the fact that if the CSA gets its funds from the industry, which wants standards for its products, this organization could feel under pressure to do what the industry wants it to do.

For the most part, the participants were very much in favour of the CSA developing standards for gas meters for the Canadian Standards System. In fact, they emphasized that the CSA currently benefits from a higher level of awareness, giving them a better reputation than Measurement Canada. When they found out that the core of CSA activities is to develop standards, the participants felt that it would make sense to take on this responsibility and to bring panels of experts together to develop standards. A few

participants perceived this as being a good arrangement but felt it was important that Measurement Canada continue to monitor the process. They also wanted to know how this shift in responsibilities could save money and be more efficient only if Measurement Canada continued to implement standards by itself.

Practically all of the participants said that it would be important for consumers to be represented on the expert panels that would develop these standards. People recognize that the average citizen could not fill this role because the subject at hand is highly technical. They believe that if experts from consumer organizations took part in the process, this would contribute to making the consumer feel as though his interests are protected.

An alternative scenario was presented, whereby Measurement Canada would provide accreditation to meter manufacturers for the initial testing of the products toward type approval. According to this scenario, Measurement Canada would supervise the process through its Accreditation Program and the CSA would work towards developing technical specifications.

This option was received with less enthusiasm. The participants found this process a bit complicated and bureaucratic. The participants were very worried about the idea of providing accreditation to meter manufacturers to test their own product and this was perceived as a potential source of conflict of interest. Most participants felt strongly that the meter tests performed toward their approval should be performed by an independent organization and not by the manufacturers who have a particular interest in approving everything. There is a fear present that in this system, consumers will find themselves with meters that are the best for manufacturers and gas distributors, but not for themselves.

#### **5.2.4- The protection of consumers**

Most participants felt that the most important thing that Measurement Canada has to do to protect the interests of consumers is to verify the performance of meters on a regular basis as well as with surprise visits, and to make the respect of standards compulsory. Any manufacturer or distributor that does not respect these standards has to be punished. Measurement Canada should also publicize its role to Canadians so that if people have a

dispute over their meter, they can resort to another alternative than dealing with their gas distributor. In other words Measurement Canada has to be present to arbitrate conflicts, rigorously verify meters and make sure that the dependability of meters, which is taken for granted by consumers, remains the same.

Participants categorically insist that Canada not automatically accept new meter types simply because other regulating organizations from other countries have. There was a consensus that Canadian standards should always be higher than those in other countries and that other countries don't know what our climate is like. Participants stated that it would be acceptable for Measurement Canada to give credence to the tests performed by other countries when it approves the meters. However, there must always be an approval process in Canada.

Finally, the presence of consumer groups such as Option consommateurs or the Consumers' Association of Canada in the information committees that would be set up in this sector, would do a lot to reassure consumers as to the protection of their interests.

## **6- OPTION CONSOMMATEURS' ARGUMENTS**

The cross-Canada survey (section 4) and the discussion groups (section 5) enabled us to obtain a clear portrait of the opinions of consumers, concerning the current situation as much as the changes to come in matters of natural gas measurement regulations. Furthermore, we were able to take a look at the direction Measurement Canada plans to take as well as a few changes proposed by the Canadian Gas Association (section 2). Finally, we looked at the natural gas measurement regulatory process in the United States (section 3). Based on all these elements, we developed arguments that state our position in these matters.

These arguments are presented in two parts. The first part consists in giving the position of Option consommateurs as to the subjects that touch the overall intervention of Measurement Canada. The second part deals individually with each Measurement Canada jurisdiction that touches natural gas, which excludes the areas that are regulated strictly by the *Weights and Measures Act*, such as net quantity verifications or product inspections. As well as stating our position, we will also react to the proposals of the Canadian Gas Association (CGA).

### **6.1- The overall intervention of Measurement Canada**

#### **6.1.1- The Measurement Canada Accreditation Program**

As described in section 2.1, the Accreditation Program's purpose is to entrust organizations with a portion of the tasks performed directly by Measurement Canada. Most accredited organizations are currently natural gas distributors. However, the data from the survey has indicated that consumers don't trust their natural gas distributors a lot because this lack of trust constitutes the main reason why they don't completely or partially trust their gas

meters. The discussion group participants also emphasized that they didn't have great confidence in their gas distributor and that they had the impression that the latter wasn't doing everything necessary to guarantee the accuracy of meters. This lack of confidence in natural gas distributors is therefore apparent. Furthermore, the consumers who were consulted expressed deep reservations as to the idea of entrusting meter verifications to the companies that use them to measure gas readings, because they fear conflicts of interest. This fear also expresses itself in the general wariness of consumers when it comes to all forms of self-regulation or self-surveillance by the industry, made worse by the recent Enron and Worldcom financial scandals.

For Option consommateurs, the ideal situation would be that Measurement Canada do the initial verification and the verification itself, or that the accredited organizations be neutral and have no relationship to natural gas distributors. But the reality is different because the accreditation process is well in place and gas distributors are largely accredited. Furthermore, Measurement Canada doesn't have enough inspectors on hand anymore to do all the initial verifications and the reverifications of meters. The hiring and the training of new inspectors would require too many resources compared to the organizations's limited means. We are therefore aware that going back in time would practically be impossible. For these reasons, we don't ask that the Accreditation Program be removed even if it isn't the best way to protect consumers.

That being said, it is important for accredited organizations to be reasonably supported by Measurement Canada in order to make sure that they perform their tasks according to the standards implemented by the organization. This is even more true since Measurement Canada expects to extend the Accreditation Program to other areas of intervention where the organization currently directly intervenes. This item will be on the agenda of the natural gas sector review as was the case last year for the electricity sector review.

For the moment, this program seems to be working well for the initial verification and the reverification of meters. The monitoring of these accredited organizations, which includes surveillance audits, product audits and accreditation renewal audits that take place every three years, ensures a proper surveillance of these elements. These monitoring methods must be kept and Measurement Canada has to make sure that they're applied in a strict

manner. These audits constitute an essential element for Option consommateurs and they have to be maintained in order to preserve Measurement Canada's monitoring role.

### **6.1.2- Information given to consumers**

The results of the survey as well as the comments made by consumers during the discussion groups indicate that Measurement Canada is not well known at all by consumers. Very few consumers know that they can contact a neutral and independent organization in case of disputes with their distributor relating to natural gas measurement. Yet, one of the key confidence factors for consumers toward their meter is knowing that a neutral and impartial organization exists in order to protect them and to make sure that measurements are accurate. Consumers need to know that this sort of organization is present in case of a conflict with their gas distributor.

Most consumers currently believe that they have no recourse if they disagree as to their meter's reading. Consumers believe that they can only contact their gas distributor, who are judge and the opposing party at the same time, in case of a dispute concerning the accuracy of their meter. Since consumers have little confidence in their natural gas distributor and that the level of satisfaction for individuals who have reported a problem is average, we consider this situation to be a problem. It is very possible that those consumers who believe that their meter is inaccurate don't take any action, since they believe that their gas distributor won't handle the problem fairly and justly and that no course of action exists.

Consumers therefore have to be more aware of the existence of Measurement Canada and its role of arbitrator in case of conflict between consumers and gas distributors. Better knowledge of this role will enable consumers to feel better protected and will answer the need they have to know that a fair and impartial arbitrator can help them. We are aware that Measurement Canada has limited means and that it could not answer the flow of calls that would follow a national information campaign on its role. We therefore recommend that the publicity be aimed at those consumers who want to report a gas measuring problem. To do this gas distributors have to contribute to the process and it is our opinion that this will contribute to increasing the confidence of gas consumers.

### **6.1.3- Adjusting Measurement Canada's level of intervention**

One of the particularities of the natural gas industry is the variety of intervenors on the market. In the regulated electricity industry, the same company takes on the responsibilities of manufacturer, transporter and distributor, all at the same time. However, the deregulation of electricity that occurred in certain provinces changed this situation, with the existence of distinct companies and the functional separation of companies<sup>66</sup> between production, transport and distribution. In the area of natural gas, this kind of situation has always existed and the companies that manufacture, transport, store and distribute natural gas are different. This kind of situation means that measurement points for meters are installed between each phase of the natural gas distribution chain.

The *Electricity and Gas Inspection Act* stipulates the same level of intervention for each natural gas measurement point. This way, the meters that are installed when they've been manufactured and are ready for transport, are submitted to the same rules than those that are installed at the home of a consumer. The Canadian Gas Association estimates that such a level of intervention is not necessary for all types of trade operations. The Canadian Gas Association therefore recommends the following (recommendation 7.2) :

- Trade operations would open the way for a variety of interventions that would be determined by the complexity level of interested parties ;
- The trade operations performed by intervenors who have a high level of complexity and who have access to technical measuring abilities should be subjected to low levels of intervention<sup>67</sup>.

This proposal suggests that the Measurement Canada level of intervention take into account the degree of vulnerability of consumers. This way, the transactions between a manufacturer and a transporter would require a low level of intervention since both parties

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<sup>66</sup> In Quebec, the deregulation of the production sector has brought about the functional separation of Hydro-Québec between production, transport and distribution activities.

<sup>67</sup> CANADIAN GAS ASSOCIATION, *Report presented to the Natural gas trade sector review and to Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association, June 2002, 10.

have sufficient technical means at their disposal to check the accuracy of meters themselves and don't need Measurement Canada to intervene to make sure that the measuring devices are accurate. The same goes for transactions that involve transporters, gas distributors and large industrial consumers. For the transactions that involve small and medium sized businesses in the trade and industrial sectors, the Canadian Gas Association recommends that the level of intervention be average because of a certain vulnerability of those consumers. Finally, the Canadian Gas Association believes that residential consumers make up the vulnerable part of the overall natural gas market because they have a low level of complexity and because they don't have access to technical abilities pertaining to measurement. For this reason, the Canadian Gas Association believes that residential consumers need a high degree of intervention from Measurement Canada <sup>68</sup>.

Residential consumers don't have the necessary financial, technical or legal resources to do the verification and re-verification of meters, or to challenge their natural gas distributor in case of conflict. This way, the rules that apply to meters and that are used to measure the gas use of residential consumers should not be decreased. It's important for residential consumers to keep the level of protection currently offered by Measurement Canada and in that sense, Option consommateurs agrees with the Canadian Gas Association's proposal.

For the transactions that involve the other intervening parties, we will let their representatives express their own opinions as to the proposals of the Canadian Gas Association. However, we will remain vigilant in order to make sure that the decisions that are taken do not affect the accuracy of measurements because the cost of measurement mistakes during the manufacturing process, transport and distribution will be transferred to the final consumers, including residential consumers.

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<sup>68</sup> CANADIAN GAS ASSOCIATION, *Report presented to the Natural gas trade sector review and to Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association, June 2002, 10-13.

#### **6.1.4- The analysis of the cost-benefit ratio of Measurement Canada's intervention**

The Canadian Gas Association proposes (recommendation 7.3) that all Measurement Canada intervention programs in matters of natural gas measurements be submitted to an impact study called *Regulatory Impact Analysis Statements*. The impact of this study would be to analyse the costs and advantages of the Measurement Canada intervention and would meet the guidelines of the Privy Council that stipulate that the regulatory organizations have to make sure that the advantages outweigh the costs for Canadians. The Canadian Gas Association defends its position by giving the example of the changes to the sampling program used for the initial verification and the re-verification of meters, which would have cost \$80 million more to residential natural gas consumers and this for possible differences of less than \$300 000<sup>69</sup>.

This kind of proposal remains incomplete because it does not indicate how the advantages and the cost of the Measurement Canada intervention programs would be calculated. Furthermore, we believe that it could be hazardous to calculate the cost of this kind of regulation. For example, we'd be curious to know which method is used by the Canadian Gas Association to determine that the changes to the sampling program would cost \$80 million more to companies that work in the natural gas sector. On this subject, the Canadian Gas Association didn't give us a satisfactory explanation as to how to calculate the cost.

When it comes to the question of calculating the cost of regulation, companies have the tendency of limiting themselves to the costs imposed by the regulation. But the lack of regulation also costs something. The current confidence of consumers stems from the fact that there is no "meter scandal" and it is our opinion that the current regulation largely contributes to the absence of accuracy problems and meter dependability. A lack of regulation could reduce the dependability and the accuracy of meters and a sudden decrease

in the trust of consumers would cost quite a lot to the overall natural gas industry which, in certain provinces such as Quebec, finds itself in a competitive situation with other sources of energy that isn't favorable to it. Furthermore, the population always have the Enron and Worldcom financial scandals in their minds and are particularly sensitive to any scandal that affects companies.

We don't categorically oppose the impact analysis on the cost of regulation and Measurement Canada intervention programs. We are aware that the regulations that are of little use to the accuracy of meters give rise to costs for natural gas distributors and that these costs are transferred to consumers, notably in provinces where fees are based on service costs. However, we believe that these kinds of studies should as much take into account the costs and advantages of the existence of intervention programs as their removal and this, while taking into account the interests of consumers. In consequence, we ask the Canadian Gas Association to give us more details on the analysis of costs and advantages that it would like to see implemented for the Measurement Canada natural gas measurement regulations.

### **6.1.5- Approach centered on efficiency**

The Canadian Gas Association proposes that Measurement Canada's standardized regulatory approach be replaced with a new approach that concentrates on performance (recommendation 7.5). The Canadian Gas Association justifies in part this recommendation by basing itself on the recommendations of the Privy Council, by which the federal regulatory organizations have to « as much as possible, define the requirements for technical applications depending on the performance of the product rather than on the design and descriptive characteristics »<sup>70</sup>. The Canadian Gas Association denounces the fact that the current approach provides the same testing methods (tolerance, number of measurement points, frequency of tests) for all kinds of devices, without taking into

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<sup>69</sup> CANADIAN GAS ASSOCIATION, *Report presented to the Natural gas trade sector review and to Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association, June 2002, 8; 14.

account their inherent capacity for performance, such as dependability and accuracy. According to this organization, this kind of approach does not encourage meter owners (mainly gas distributors for meters manufactured for consumers) to invest in new technologies which would improve the performance of the measurement. The Canadian Gas Association therefore recommends that Measurement Canada let meter owners show that the performance of their devices is in accordance with standards<sup>71</sup>.

The main preoccupation of consumers is that meters be dependable and measure their use of gas with accuracy. We are favorable to Measurement Canada's regulations being more oriented towards performance, if this contributes to improving the dependability and accuracy of meters. However, the Canadian Gas Association didn't give us any concrete examples of the proposed approach, which according to us remains theoretical. It would be important for market intervening parties to know more about the details of this kind of approach in order to clearly state their position in this matter.

Furthermore, we have to remain careful as to the advantages of implementing new technologies because the latter, as innovative as they are, are likely to be less dependable than those currently used. The participants were concerned that new meter technologies would be beneficial to manufacturers and to the natural gas industry, but not necessarily to consumers. In this context, the only motive for implementing new technologies should not be the interest of manufacturers and meter owners, and market intervening parties should not all be involved in the process. It would therefore be important that the adoption of new technologies take into account the needs of consumers and ensure at the least the dependability and accuracy of meters.

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<sup>70</sup> CANADIAN GAS ASSOCIATION, *Report presented to the Natural gas trade sector review and to Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association, June 2002, 15.

<sup>71</sup> CANADIAN GAS ASSOCIATION *Report presented to the Natural gas trade sector review and to Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association, June 2002, 15.

## **6.2- Measurement Canada's jurisdictions**

### **6.2.1- Development of standards and technical regulations for meters**

The development of standards and technical regulations for meters is currently being done by Measurement Canada. The Canadian Gas Association considers that the current process does not follow the rhythm of technical evolution and has developed the following solution (recommendation 7.1) in order to remedy the situation:

- Measurement Canada should adopt the Canadian Standards System to elaborate and update all technical standards, bulletins, approval of prototypes and other related documents in order to ensure an efficient consultation of key intervening parties;
- Measurement Canada should call on an accreditation organization approved by the Standards Council of Canada, such as the Canadian Standards Association, to diversify the ways in which services are provided <sup>72</sup>.

According to the Canadian Gas Association, the adoption of standards by the Canadian Standards Association would have the following advantages. First of all, this process would enable the participation of all market intervening parties in the development process of technical requirements for meters. These requirements would therefore be the expression of technical knowledge shared by all intervening parties <sup>73</sup>. Second of all, this kind of process would be quicker than the one currently used by Measurement Canada.

This sort of proposal would profoundly change the approval process for meter technical specifications, by replacing Measurement Canada with the Canadian Standards

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<sup>72</sup> CANADIAN GAS ASSOCIATION *Report presented to the Natural gas trade sector review and to Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association, June 2002, 9.

<sup>73</sup> CANADIAN GAS ASSOCIATION *Report presented to the Natural gas trade sector review and to Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association June 2002, 9.

Association. The system would be similar to the one at the federal level in the United States, with the participation of the NIST and the NCWM in the development process of standards. Such a process would involve all participants, divided into three sub-groups, i.e. consumers, the industry and the experts. The Canadian Standards Association works by consensus and this consensus has to be reached in all sub-groups for the standard to be adopted.

The discussion group participants, for the most part, expressed their enthusiasm for the adoption of standards by the Canadian Standards Association. They emphasized that this organization was very credible and guarantees the protection of consumers. However, certain participants expressed their fears as to the control of the industry over the process. These fears were justified by the fact that the development process is initiated and financed by the industry.

Option consommateurs has a certain knowledge of the development process of standards and has contributed to it. There were a few instances where we noticed that the adoption of standards served as a substitute for regulations and legislation, particularly when industry intervening parties felt threatened by the adoption of regulations or restrictive legislation<sup>74</sup>. In these cases, the standards resulting from this process were more susceptible of decreasing the protection for consumers. Option consommateurs intends to remain vigilant as to the real motives behind the industry's intention of adopting the National Standards System.

Our experience has enabled us to observe that the standardization process doesn't always meet the results that are hoped for. First of all, the advantages of speed emphasized by the Canadian Gas Association are not always obvious. Furthermore, it isn't always guaranteed that all intervening parties who participated in the development of standards will adopt and follow the guidelines. A standard remains essentially voluntary and the people who participate in their development are not legally binded to adopt and follow them. For example, the development of a standard concerning the protection of personal and

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<sup>74</sup> Me Jannick DESFORGES, Head of legal services, Option consommateurs, interview done in Montreal on August 13th 2002.

confidential information took five years to finalize. Furthermore, this standard was not adopted and respected by all intervening parties who took part in its development.

These warnings and examples make us ask that the adoption of standards for meter technical specifications be supported by Measurement Canada. It's important for the standards that are adopted by the new system make sure that the dependability and accuracy of meters be maintained. We will not accept this kind of system if the motives behind its adoption are self-regulation of the industry and a slacking-off of requirements in terms of dependability and accuracy of meters. This is why we're asking that Measurement Canada participate in the development process of standards in its entirety, and have the last word in approving any standard that stems from this new process.

It's also important that the process provide for mechanisms to make sure that all meter manufacturers respect the standards that have been developed. In that sense, it's essential that the standards that have been adopted become compulsory and be adopted by Measurement Canada as regulations. We believe that the adoption of these standards as regulations is indispensable for the credibility of such a system, because they make sure that companies are bound to them and that consumers do not lose the protection that is their right in the current regulation system.

Finally, Option consommateurs will support the adoption if this system only if it really facilitates the participation of all parties and if consumers can significantly contribute to it. The adoption of these standards is a complicated process requiring abilities and an expertise in meter technology. The industry, the experts in the area and the Measurement Canada specialists have the financial and technical means necessary to have an efficient representation within work groups set up in the context of this process. However, consumer protection groups are non-profit organizations that have far less financial and technical means at their disposal. They don't have the same kind of expertise and cannot participate in an efficient way in developing standards for gas meters. Their participation therefore becomes practically useless and infringes on the objective of the participation of all parties in the process. In that kind of situation, consumer representatives will not be efficiently represented in work groups without financial and technical assistance. The solution to this problem would be a financial and technical assistance mechanism so that

consumer protection groups can have at their disposal the necessary expertise to efficiently participate in work groups whose objective is to develop new standards. Where this financial and technical assistance will originate from will have to be determined and it will be important that this does not impede the independence of action of consumer groups.

### **6.2.2- Approving new types of meters**

The approval of new types of meters has also been the subject of proposals. Measurement Canada intends to use the *Alternative Service Delivery Mechanism (ASD)* by accrediting outside organizations to test and approve new meter types. According to this strategy, manufacturers would perform the tests subject to the standards that have been developed previously and would submit the results to Measurement Canada, who would approve the new meter types based on them.

This kind of situation is not acceptable to Option consommateurs. The discussion group participants categorically rejected any idea by which manufacturers would participate in the approval process of new types of meters by testing their own prototypes in order to have them approved. This kind of situation could create conflicts of interest because it's to the advantage of manufacturers of having their new product, in which they invested millions of dollars in research and development, approved and marketed as quickly as possible. It is our opinion that the current Accreditation Program would not provide a sufficient monitoring of accredited manufacturers by Measurement Canada.

However, if Measurement Canada favored entrusting the approval of new types of meters to accredited organizations, we would be more favorable to this idea if the tests were performed by organizations other than meter manufacturers and with whom they have no business relationship. Measurement Canada could extend its Accreditation Program to that kind of organization, so that they can proceed to testing new meter types to have them approved. However, it would be important for Measurement Canada to make sure that such organizations have the knowledge and enough equipment to perform these tests. Furthermore, it would be important to apply a more restrictive Accreditation Program for this kind of operation.

Using the Canadian Standards System through the Canadian Standards Association was mentioned as a means of replacing the current system. The Canadian Gas Association mentions this possibility, although not very clearly:

It recommends that Measurement Canada take into account the above mentioned 7.1 recommendation, which suggests adopting the Canadian Standards System to develop and update all prototype approvals and related documents in order to ensure an efficient consultation of intervening parties. The Canadian Gas Association also recommends that Measurement Canada call on an organization approved by the Standards Council of Canada, such as the Canadian Standards Association, to diversify the ways in which services are provided<sup>75</sup>.

The discussion group participants were very favorable to using the Canadian Standards Association to approve new meter types based on standards developed by this organization. The credibility and the great visibility of the CSA in Canada contribute to the populations's positive attitude toward this idea. The latter seems more attractive at first glance and using the CSA seems more advantageous for the protection of consumers than extending the Accreditation Program to private organizations, especially for meter manufacturers. It would however be important to obtain more details on the application of this approval system before saying they're definitely in favor or not of such a decision. First of all, is the CSA able to perform the tests that lead to an approval of meters? If not, who would perform the tests ? Second, would the participants to the standardization process have the right to take a look at the approval of new meter types ? Third, would Measurement Canada remain the organization that has the final say for these meters? If this is the case, does the fact that Measurement Canada no longer performs the tests reduce its expertise in that area, which would make it approve new devices based on faith ? The intervenors in the natural gas sector review will have to answer these questions and better define their intentions so that we can determine our position.

At the onset, we will oppose any approval process where tests are performed by manufacturers because of the danger of a conflict of interest. Furthermore, we insist that

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<sup>75</sup>CANADIAN GAS ASSOCIATION *Report presented to the Natural gas trade sector review and to Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association, June 2002, 14.

Measurement Canada have the final say as to approval of new meter types and that it have the resources and capabilities to do this efficiently. Finally, we insist that all participants supervise the approval process of meters if it's done by the Canadian Standards Association.

The Canadian Gas Association also recommends simplifying the meter approval process (recommendation 7.4). In this context, Measurement Canada would recognize the validity of testing data from other international organizations such as the *National Institute of Standards and Technology* (NIST) in the United States or the *Netherlands Metrological Institute* in Holland (NMI). According to this natural gas industry defender of interests, such a solution would reduce the duration of the process for approving new meter types<sup>76</sup>. Consumers we consulted were not in favor of automatically approving devices that were approved by foreign regulatory organizations, notably because of the particular Canadian climate. However, they're willing to give value to the tests done by other organizations outside the country. That being said, Option consommateurs believes that Measurement Canada could use the tests performed by foreign regulatory organizations that are recognized, such as the NIST and the NMI, the scientific vigor of which is known internationally. This does not mean that Measurement Canada should approve the devices approved by these organizations, but it could recognize the test results if they're performed in accordance with Canadian standards. Furthermore, Measurement Canada should perform additional tests if the Canadian standards contain elements that have not been tested or if these standards are stricter than in the countries where the tests were performed. In any case, Measurement Canada should always give the final approval to the meters.

### **6.2.3- Maintenance and calibration of measurement standards**

Measurement Canada has not proposed any changes as to the implementation of tracing measurement standards, nor has any other intervening party. We do not suggest any changes for this jurisdiction because we believe that the current system is satisfactory.

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<sup>76</sup> CANADIAN GAS ASSOCIATION *Report presented to the Natural gas trade sector review and to Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association, June 2002 14.

#### **6.2.4- The verifications of devices used to inspect meters**

As was mentioned in chapter 2, Measurement Canada intends to entrust the verification of devices used to verify meters to accredited organizations by using the *Alternative Service Delivery Mechanism* (ASD). Measurement Canada intends to extend the use of the accreditation program to the verification of these devices that are used by accredited organizations. Consequently, the accredited organizations will verify the devices they use to verify the meters. The Canadian Gas Association has not made a proposal concerning this matter but we believe that it would be in strong favor of such a change, because it would take less time to send verification devices to Measurement Canada.

Option consommateurs opposes this idea because this would increase the risk of very costly errors. The devices used to verify meters are very important for the accuracy of the meters because their accuracy has consequences for thousands of consumers. A device that is not verified properly and that is inaccurate will create reading errors for all meters verified by this device. It is therefore our opinion that the money that is saved if the Accreditation Program is extended to this type of intervention is not worth running the risk of a possible inaccuracy of this device. We therefore recommend that the verification of the devices that verify meters stay under the jurisdiction of Measurement Canada.

#### **6.2.5- Initial verification and reverification of meters**

These jurisdictions were discussed in section 6.1.1, the subject of which was the Accreditation Program.

#### **6.2.6- Inspection of meter installations**

Measurement Canada intends to no longer directly inspect meter installations and to call on the Alternative Service Delivery Mechanism. As was previously mentioned in section 2.2.6, meter installations aren't found at consumers' homes but rather with gas distributors, or when large quantities of gas are exchanged. Since the transactions in play are done between parties with financial means and sufficient technologies to develop an expertise as

to measurement, the parties involved in the process don't need a high level of intervention from Measurement Canada. For this reason we do not oppose the verification of meter installations being done by the Measurement Canada Accreditation Program.

### **6.2.7- Investigations of complaints and settlement of disputes**

These responsibilities will remain under the jurisdiction of Measurement Canada because the organization considers that they are non negociable for all sector reviews. We support this guideline because they guarantee consumers that a neutral organization will protect them, one that is independent from gas distributors in case of conflict pertaining to natural gas measurements. The protection provided by Measurement Canada is far more better than the one given to consumers in the United States we studied and we feel it's important that it remain so.

However, the lack of public knowledge on the role of Measurement Canada decreases the advantage of this protection. As we mentioned in section 6.1.2, we would like for consumers to know more what course of action they can take in case of disputes over natural gas measurement.

## **CONCLUSION AND RECOMMENDATIONS**

The purpose of this study was to express the point of view of Option consommateurs in the context of Measurement Canada's natural gas trade sector review. To deliver arguments that reflect as much as possible the opinions of Canadian natural gas consumers on natural gas measurement regulations and the changes to come in this sector, Option consommateurs used the following tools : A study of practices in the United States, a cross-Canada survey and six discussion groups. This study is also based on Option consommateurs' past experience during the electricity trade sector review in 2001 and its participation in the different development mechanisms of standards in the past.

Based on all these elements, we were able to consider our position as to Measurement Canada's overall intervention and the different jurisdictions of the trade measurement regulatory organization. Our global position is based on the fact that residential consumers constitute a vulnerable clientele that doesn't have the financial, technical or legal means of verifying the accuracy of their meter measurements or to resolve any conflict in case of doubt. Consumers need for a neutral and independent entity to make sure that the quantity of natural gas their meter reads is what they have really used. To be able to do this, meters have to be designed, serviced, verified and re-checked to make sure they are dependable, durable and accurate.

In general, consumers have reasonable confidence in the accuracy of their meter and this is largely due to the fact that Measurement Canada efficiently monitors the natural gas trade measurement market. The Measurement Canada natural gas sector review aims at obtaining the opinion of the intervening parties on the subject of the changes to come relating to this sector's trade measurement regulations. As a participant in this sector review, it's important for Option consommateurs that the trust of consumers be maintained and justified by an efficient and sustained monitoring of the market.

The changes proposed by the other parties and supported by Measurement Canada are going towards a decrease of the organization's direct involvement and a greater

participation from the industry and consumers as to the development and application of regulations in this sector. On the other hand, Canadian consumers are opposed to any form of self-regulation and self-monitoring of the industry. They want a neutral and impartial organization to be present to make sure that natural gas measurements are fair and accurate for all. However, consumers are willing to let other mechanisms be put in place to monitor the market. For example, the consumers who were consulted would accept the involvement of the Canadian Standards Association in the implementation of technical meter specifications and in the approval of new types of meters.

As to Measurement Canada's natural gas sector review, Option Consommateurs recommends:

**1- That Measurement Canada keep its current Accreditation Program and make sure that the control guidelines over accredited organizations, i.e. surveillance auditors, product auditors and the auditors who approve accreditation renewals every three years, be kept and strictly applied**

**2- That the existence and the role of Measurement Canada should be more publicized and this publicity should be directed towards consumers who have pointed out gas metering problems with their distributor**

**3- That Measurement Canada's level of intervention should remain high for all trade transactions that involve residential consumers**

**4- That any change made to Measurement Canada's level of intervention as to trade transactions that involve intervening parties other than residential consumers, preserve current accuracy levels as to gas measurement**

**5- That the analysis of the cost-benefit ratio of Measurement Canada's intervention programs take the interests of consumers into account**

**6- That the analysis of the costs-benefit ratio of Measurement Canada's intervention programs equally take into account the existence and the removal of these programs**

**7- That the advantages and the consequences of using this approach, one that concentrates on the efficiency as to the application of regulations, should be explained more clearly to all entities who are part of this market**

**8- That the implementation of new technology take into account the needs of consumers and at least make sure that the current reliability and accuracy of meters be maintained**

**9- That Measurement Canada take part in the development of standards and technical specifications adopted through an organization accredited by the Standards Councils of Canada and make the final decision as to their adoption**

**10- That standards and technical specifications adopted through an organization accredited by the Standards Council of Canada be adopted by Measurement Canada as regulations and that these regulations should be made to apply to all meter manufacturers**

**11- That financial and technical assistance should be provided to consumer groups who take part in meetings set up to develop technical standards for meters and that this assistance not interfere in any way, shape or form with their independence**



**Commentaire :** Page : 84  
Cette recommandation n'a pas été suivie, les intervenants considérant que ce n'est pas l'endroit pour en discuter.

**12- That if Measurement Canada entrusts the approval of new types of meters to accredited organizations, that this approval should apply only to organizations other than meter manufacturers who have no ownership relationship to them and who possess enough knowledge and own the necessary equipment to perform the necessary tests**

**13- That if Measurement Canada entrusts the approval of new types of meters to accredited organizations, that Measurement Canada should develop a special Accreditation Program that is more restrictive than the one currently in place**

**14- That if Measurement Canada entrusts the approval of new types of meters to accredited organizations, this organization should have the final word in that approval and should take the necessary steps to maintain their efficiency in doing so**

**15- That if the approval process for new meter types is entrusted to the Canadian Standards Association, Measurement Canada should have the final say in this matter and should take the necessary steps to maintain their efficiency in doing so**

**16- That Measurement Canada have the final word in approving new types of meters, even if the organization gives value to the results of the tests that were performed by foreign regulating organizations recognized internationally**

**17- That the inspection of the equipment that is used to verify the meters of organizations accredited by the Accreditation Program, should remain the responsibility of Measurement Canada**



**Commentaire :** Page : 85  
Il n'est pas possible de faire passer cette recommandation, car le processus d'accréditation est route. Une nouvelle recommandation satisfaisante a été formulée, assurant le contrôle de MC, qui a une obligation légale sur la certification des étalons.

## BIBLIOGRAPHY

CANADIAN GAS ASSOCIATION, *Report presented to the natural gas trade sector review and Measurement Canada by the Canadian Gas Association*, Toronto, Canadian Gas Association, June 2002.

DESFORGES, Me Jannick, head of legal services, Option consommateurs, Interview done in Montreal on August 13th 2002.

FLORIDA PUBLIC SERVICE COMMISSION, *Rules of Florida Public Service Commission*, Chapter 25-7 – Gas Service, 7-31, website, <http://www.psc.state.fl.us/rules/Chap07.pdf>.

MEASUREMENT CANADA, *Natural gas trade sector review*, Ottawa, Measurement Canada, 2002.

Measurement Canada, *Measurement Canada Accreditation Program*, website, <http://strategis.ic.gc.ca/epic/internet/inmc-mc.nsf/vwGeneratedInterf/Im01807f.html>.

Measurement Canada, *S-A-01 Accreditation criteria for organizations who want to do inspections in accordance with the Electricity and Gas Inspection Act and the Weight and Measures Act*, Website, <http://strategis.ic.gc.ca/epic/internet/inmc-mc.nsf/vwGeneratedInterf/Im01469f.html>.

MONTPETIT, Benoît, Measurement Canada Auditor, Interview done in Montreal on July 29th 2002.

NATIONAL CONFERENCE ON WEIGHTS AND MEASURES, *Join NCWM Today*, website, <http://www.ncwm.net/join.html>.

NATIONAL CONFERENCE ON WEIGHTS AND MEASURES, *NCWM: A Far-Reaching Mission*, website, <http://www.ncwm.net/mission.html>.

NATIONAL CONFERENCE ON WEIGHTS AND MEASURES, *NCWM: The Decision-Making Process*, website, <http://www.ncwm.net/process.html>.

NATIONAL CONFERENCE ON WEIGHTS AND MEASURES, *NCWM: The Organization*, website, <http://www.ncwm.net/organization.html>.

NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *General Information*, website [http://www.nist.gov/public\\_affairs/general2.htm](http://www.nist.gov/public_affairs/general2.htm).

NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *NIST Handbook 44 – 2002 Edition. Specifications, Tolerances, And Other Technical Requirements for Weighing and Measuring Devices*, Section 3.33 - Hydrocarbon Gas Vapor Measuring Devices, website, <http://ts.nist.gov/ts/htdocs/230/235/h4402/hydro.pdf>.

NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *NIST Laboratories*, website, [http://www.nist.gov/public\\_affairs/labs2.htm](http://www.nist.gov/public_affairs/labs2.htm).

NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *Traceability – NIST Policy and Supplementary Materials*, website, <http://www.nist.gov/traceability/>.

NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, *Uniform Regulation for National Type Evaluation*, website, <http://ts.nist.gov/ts/htdocs/230/235/h130-02/ntepreg.pdf>.

NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY OFFICE OF MEASUREMENT SERVICES, *Office of Measurement Services*, website, <http://ts.nist.gov/ts/htdocs/230.htm>.

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, *Standards for the Gas Service in the State of California*, Revised April 8 1989, 8, website, <http://www.cupc.ca.gov/PUBLISHED/Graphics/641.PDF>.

STATE OF NEW-YORK PUBLIC UTILITIES COMMISSION, *Public Utilities Commission Consumer Guide: Meter Reading*, website, <http://www.dps.state.ny.us/meter.html - accuracy>.

SUITER, Richard, National Institute of Science and Technology, e-mail received on August 5<sup>th</sup> 2002.

**APPENDIX 1 - SECTION 3.33 – HYDRO-CARBON  
GAS VAPOR-MEASURING DEVICES IN THE  
TECHNOLOGY HANDBOOK 44**















## **APPENDIX 2 – QUESTIONS OF THE CROSS-CANADA SURVEY**

**June 10, 2002**

### **Options Consommateurs**

**FC22**

#### **Final Omnibus on Natural gas meters and supermarket weights**

F Do you use natural gas in your household, either for your home heating or for other appliances such as a stove or dryer etc...?

01 – Yes, natural gas home heating

02 – Yes, have other gas appliances

03 – Yes, **both** natural gas heating AND other appliances

04 – No **SKIP TO 11F**

#### **VOLUNTEERED**

98 - Other (SPECIFY)\_\_\_\_\_

99 – DK/NA

**ASK ALL WHO ANSWER YES IN Q. 1F:**

F Who is responsible for paying the gas bill in your household? Is it you, you together with someone else, someone else in your household only or do you not pay for gas at all in your household?

01 - You

02 - You and another household member

03 – Other household member only **SKIP TO Q. 11F**

04 - Do not pay for gas at all/included in rent **SKIP TO Q. 11F**

**VOLUNTEERED**

99 – DK/NA **SKIP TO Q. 11F**

**ASK ALL WHO HAVE AT LEAST SOME RESPONSIBILITY FOR PAYING GAS BILL IN Q. 2F**

F In general, how confident are you in the accuracy of your gas meter? Are you...**READ LIST**

01 - Totally confident

02 - Quite confident

03 - Not too confident

04 - Not at all confident

**VOLUNTEERED**

99 – DK/NA

F What is the main reason why you are [ANSWER TO Q. 3F] in the accuracy of your gas meter? **ACCEPT ONE RESPONSE ONLY**

---

---

F Have you ever notified your gas company about a problem with the readings given by your gas meter?

01 - Yes

02 – No **SKIP TO Q. 11F**

99 – DK/NA **SKIP TO Q. 11F**

**IF THE ANSWER TO QUESTION 5F IS « YES », ASK:**

F Please tell me whether or not each of the following happened after you notified your gas company about the problem? **READ AND ROTATE**

*a. Your gas company gave you an explanation about your gas consumption and the amount being billed*

---

01 - Yes

02 – No

99 – DK/NA

b. Your gas company sent an employee to verify the gas meter

c. Your gas company suggested that you contact “Measurement Canada”.

F a. Did anything else happen when you notified your gas company?

01 - Yes

02 – No **SKIP TO Q. 8F**

99 – DK/NA **SKIP TO Q. 8F**

**IF YES TO Q. 7F a, ASK:**

b. What was it?

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---

**ASK ALL WHO SAID YES TO Q. 5F**

F How would you rate the way your gas company resolved your situation on a scale from 1 to 10, where 10 means you are totally satisfied with the resolution and 1 means you are not at all satisfied with the resolution.

Rating\_\_\_\_\_

**VOLUNTEERED**

02 – Situation not yet fully resolved

99 – DK/NA

**ASK ALL WHO**

---

F Were you aware of a government organization called “Measurement Canada” that can review and deal with your complaints if you are not satisfied with your treatment by your gas company?

01 - Yes

02 – No **SKIP TO Q. 11F**

99 – DK/NA **SKIP TO Q. 11F**

**IF THE ANSWER TO QUESTION 9F IS « YES », ASK:**

F Did you consider filing a complaint with Measurement Canada?

01 - Yes

02 – No

99 – DK/NA

## APPENDIX 3 – SURVEY RESULT TABLES

THE FOCUS CANADA REPORT – 2002-2  
Options Consommateurs

20. F Do you use natural gas in your household, either for your home heating or for other appliances such as a stove or dryer, et cetera?

MEMBER	GENDER		A G E				MARITAL STATUS		KIDS <18 AT HOME		LANGUAGE AT HOME		RELIGION		NON-BRIT IMMIGRANT			TENURE	UNION		
	Male	Female	18 to 29	30 to 44	45 to 59	60 or more	Single	Married	Yes	No	English	French	Catholic	Protestant	Ag	Other	Other	Own	Rent	Yes	
Pub			18	30	45	60															Pri
vate lic																					
Sect Sect	TOTAL	Male	male	29	44	59	more	gile	ried	Yes	No	lish	nch	Cath	Prot	Ag	ope	er	Own	Rent	Yes
UNWEIGHED SAMPLE	2000	970	1030	372	664	539	375	793	1193	722	1269	1442	482	796	613	456	84	105	1356	626	379
WEIGHED SAMPLE	2000	960	1040	430	645	449	430	839	1148	700	1293	1435	473	782	601	470	103	134	1297	686	358
Yes, natural gas home heating	32	26	28	19	31	29	27	20	32	34	23	34	7	19	33	32	36	24	33	17	27
Yes, have other gas appliances	1	3	3	4	3	2	2	4	1	2	3	3	1	2	2	4	4	6	2	3	3
Yes, both natural gas heating and other appliances	11	9	11	9	14	14	13	9	15	14	12	17	1	9	16	14	14	23	17	5	10
No	55	57	56	64	52	55	57	64	51	49	60	45	91	69	47	50	45	45	48	72	59
Other	-	*	*	1	*	*	*	1	*	*	*	*	-	1	-	*	-	1	*	1	-
DK/NA	1	*	1	3	*	*	1	2	*	*	1	1	*	1	2	*	-	1	*	2	1

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

	EMPLOYMENT STATUS					OCCUPATION					HOUSEHOLD INCOME					EDUCATION						
	Full	Part	mak	empl	Ret	Work	Prof	Tech	Off.	Sk/	Un-	Less	\$20K	\$30K	\$40K	\$60K	\$80K	Less	or	than	Comm	Coll
Some Univ																						
Univ Deg.																						
UNWEIGHED SAMPLE	2000	987	191	119	65	351	626	386	228	299	301	121	213	258	252	394	297	308	219	406	602	
WEIGHED SAMPLE	2000	966	189	112	66	381	622	383	230	294	293	106	202	267	254	379	303	321	203	403	602	
Yes, natural gas	27	27	29	33	28	26	29	32	23	28	29	22	17	19	21	28	32	38	22	25	30	
Yes, have other gas	3	2	4	3	4	2	2	2	3	3	4	-	5	3	2	2	4	1	4	4	2	
Yes, both natural	13	14	10	9	9	12	10	13	13	14	13	10	5	9	11	9	13	22	7	10	13	
No	56	56	56	55	56	59	56	52	58	53	54	67	71	67	64	61	50	37	67	59	55	
Other	*	*	-	-	-	*	*	-	-	1	-	1	1	-	1	*	*	*	-	1	*	
DK/NA	1	1	1	-	3	1	2	2	2	1	-	-	2	1	1	1	1	*	1	*		

20. F Do you use natural gas in your household, either for your home heating or for other appliances such as a stove or dryer, et cetera?

	REGION					SUB-REGIONS					COMMUNITY SIZE					FED. POLITICAL					
	Atl.	Que	Ont	West	Van	Man.	Sask	Alb	Can.	100K	5K	Less	excl	Mill	100K	5K	Lib.	P.C.	NDP	CA	
Uncl.																					
UNWEIGHED SAMPLE	2000	225	500	557	718	183	200	110	129	131	220	238	1500	493	517	508	482	630	254	239	299
WEIGHED SAMPLE	2000	163	504	748	585	320	280	120	76	66	181	262	1496	720	432	450	397	659	254	227	281
Yes, natural gas	27	1	6	35	42	29	9	35	38	55	60	29	34	22	37	31	20	27	29	25	40
Yes, have other gas	3	2	1	3	3	6	1	9	1	4	2	4	3	4	3	1	1	3	2	4	1
Yes, both natural	13	1	1	20	16	26	1	18	5	16	21	17	16	15	12	12	10	12	14	11	18
No	56	95	92	40	36	37	89	35	54	25	14	48	44	57	46	56	68	55	53	59	40
Other	*	-	-	*	*	-	-	1	-	-	*	1	*	*	1	*	*	*	*	*	-
DK/NA	1	-	-	1	2	2	-	2	2	1	3	1	1	1	1	1	-	2	1	-	-

21. F Who is responsible for paying the gas bill in your household? Is it you, you together with someone else,

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

someone else in your household only or do you not pay for gas at all in your household?

Subsample: All respondents except those who said they do not use natural gas in their household

MEMBER	GENDER		A G E				MARITAL STATUS		KIDS <18 AT HOME		LANGUAGE AT HOME		RELIGION			NON-BRIT IMMIGRANT			TENURE	UNION	
	Male	Female	18-29	30-44	45-59	60 or more	Single	Married	Yes	No	English	French	Catholic	Protestant	Agnostic	Other	Other	Own	Rent	Yes	
UNWEIGHTED SAMPLE 35 110	852	416	436	133	301	238	154	286	559	350	498	780	38	232	323	230	48	57	670	177	155
WEIGHTED SAMPLE 36 102	871	416	455	153	307	202	184	300	563	357	511	788	41	243	320	234	57	73	676	191	148
You 46 39	40	45	36	16	36	53	56	48	37	39	41	40	48	44	41	38	50	34	45	24	39
You and another 27 31 household member	31	28	33	25	40	26	24	8	43	35	28	31	25	26	30	38	22	27	33	21	32
Other household 25 18 member only	17	14	20	34	14	14	12	21	15	17	17	17	13	16	20	12	21	22	17	17	19
Do not pay for gas 3 12 at all/included in rent	12	13	11	25	10	7	7	23	5	9	14	12	13	14	8	12	7	17	4	38	10
DK/NA - -	*	*	*	-	-	-	1	-	*	-	*	*	-	-	-	1	-	-	*	-	-

MEMBER	EMPLOYMENT STATUS					OCCUPATION					HOUSEHOLD INCOME					EDUCATION					
	Full Time	Part Time	Unempl	Home mak	Unempl	Work ing	Prof Adm.	Tech S.P.	Off. Sale	Sk/ Semi	Un- skil	Less than \$20K	\$20K to \$30K	\$30K to \$40K	\$40K to \$60K	\$60K to \$80K	Less than \$80K	Coll	H.S.	H.S.	Voca
UNWEIGHTED SAMPLE 93 255	852	424	83	50	29	138	267	181	95	134	138	39	64	79	92	157	146	187	65	164	269
WEIGHTED SAMPLE 99 268	871	424	83	50	29	156	274	183	96	138	134	35	59	87	92	149	152	202	67	164	270
You 45 45	40	42	33	23	29	53	37	47	37	29	43	42	45	41	48	44	42	37	48	37	34
You and another 21 33 household member	31	31	34	33	10	26	36	35	37	34	23	29	13	20	17	31	31	39	17	34	32
Other household 15 13 member only	17	15	21	36	36	14	16	10	15	22	18	12	13	14	21	14	20	19	23	17	21
Do not pay for gas 17 9 at all/included in rent	12	12	12	8	24	7	11	8	11	15	15	16	29	25	14	11	6	5	13	11	12
DK/NA 1 -	*	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-

21. F Who is responsible for paying the gas bill in your household? Is it you, you together with someone else,

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

someone else in your household only or do you not pay for gas at all in your household?

Subsample: All respondents except those who said they do not use natural gas in their household

PREFERENCE	REGION				SUB-REGIONS				COMMUNITY SIZE					FED. POLITICAL							
	Atl.	Que	Ont	West em	Tor	Mont	Van cou	Alb	Can. excl	1 Mill	100K to 1	5K to 1	Less than	Lib.	P.C.	NDP	CA				
Bloc	TOTAL Prov bec ario Can. onto real ver Man. Sask erta B.C. Que + Mill 100K 5K Lib. P.C. NDP CA																				
Que. Und.	TOTAL Prov bec ario Can. onto real ver Man. Sask erta B.C. Que + Mill 100K 5K Lib. P.C. NDP CA																				
UNWEIGHED SAMPLE 4 143	852	11	32	335	474	115	22	71	63	99	188	124	820	208	282	207	155	270	114	97	181
WEIGHED SAMPLE 5 139	871	8	38	449	376	201	31	78	35	50	155	137	833	310	235	200	126	296	119	93	168
You 34 39	40	19	43	39	42	27	45	38	45	47	41	41	40	32	48	42	46	40	48	39	42
You and another 33 33	31	38	22	31	31	34	23	30	33	32	34	28	31	32	29	31	29	26	30	38	34
household member Other household 33 14	17	25	18	19	15	24	19	10	19	12	16	14	17	20	14	17	16	19	12	16	15
member only Do not pay for gas - 13	12	19	17	11	11	15	13	22	4	9	9	17	11	17	10	9	8	14	10	7	10
at all/included in rent DK/NA - 1	*	-	-	*	*	-	-	-	-	1	-	-	*	-	*	1	1	*	-	-	-

22. F In general, how confident are you in the accuracy of your gas meter? Are you ...?

Subsample: Respondents who have at least some responsibility for paying the gas bill in their household

MEMBER	GENDER	A G E				MARITAL STATUS		KIDS <18 AT HOME		LANGUAGE AT HOME		RELIGION		NON-BRIT IMMIGRANT		TENURE		UNION			
		Fe	to	to	to	or	Sin	Mar	Yes	No	Eng	Fre	Cath	Prot	Ag	ope	er	Own	Rent	Yes	
Pub	18 30 45 60																				
ivate lic	Fe to to to or Sin Mar Eng Fre Ath/ Eur Oth																				
Sect Sect	TOTAL Male male 29 44 59 more gle ried Yes No lish nch Cath Prot Ag ope er Own Rent Yes																				
UNWEIGHED SAMPLE 26 83	629	316	313	59	237	194	122	170	455	271	355	577	29	172	240	175	37	38	540	87	117
WEIGHED SAMPLE 26 73	620	305	315	63	235	161	147	169	446	266	352	562	32	173	229	177	40	45	531	88	106
Totally confident 50 28	33	29	37	19	27	38	45	32	34	28	37	33	30	35	40	25	41	29	35	21	34
Somewhat confident 37 52	50	56	44	56	53	46	44	51	49	54	47	51	42	44	49	57	39	38	50	47	48
Not too confident 10 11	9	8	9	15	9	9	5	9	8	9	8	8	19	10	6	9	9	16	7	14	11
Not at all confident 4 6	6	6	6	9	7	3	5	5	6	6	6	6	3	7	5	5	7	12	5	13	6
DK/NA - 1	2	1	3	1	2	4	1	2	2	3	2	2	-	2	*	3	4	5	2	2	1
	EMPLOYMENT STATUS				OCCUPATION				HOUSEHOLD INCOME				EDUCATION								

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

Score Univ Univ Deg.	TOTAL	Home Un		Work Prof		Tech Off.		Sk/ Un-		Less \$20K		\$30K		\$40K		\$60K		\$80K		Less		Corm Coll
		Time	Time	er	oyed	ired	Wm.	OLB	OSE	Serv	Skil	Work	\$20K	\$30K	\$40K	\$60K	\$80K	More	H.S.	H.S.	Voca	
UNWEIGHED SAMPLE 65 210	629	327	60	29	12	108	206	154	72	93	96	29	38	50	66	121	113	147	43	119	187	
WEIGHED SAMPLE 65 211	620	314	55	28	12	124	202	152	71	87	88	25	34	53	61	112	111	154	43	117	180	
Totally confident 46 34	33	29	32	38	40	45	33	30	29	33	30	17	33	42	29	30	35	36	42	31	26	
Somewhat confident 40 48	50	52	44	56	27	46	43	47	57	48	49	72	47	39	55	49	52	52	40	53	56	
Not too confident 6 9	9	10	13	3	7	3	11	11	7	12	9	-	4	7	10	11	7	8	8	9	8	
Not at all confident 5 7	6	6	3	3	26	5	8	6	5	6	10	4	11	12	3	7	3	3	6	6	6	
DK/NA 3 2	2	2	8	-	-	1	5	4	2	1	1	7	5	-	2	2	3	1	3	1	3	

PREFERENCE	REGION				SUB-REGIONS				COMMUNITY SIZE				FED. POLITICAL								
	Blac	Que	Ont	Atl.	West em	Van Mont	Alb	Man.	Sask	erta	B.C.	Que	+ Mill	100K	5K	Less	Lib.	P.C.	NDP	CA	
Blac	TOTAL	Prov	bec	ario	Can.	onto	real	ver	Man.	Sask	erta	B.C.	Que	+ Mill	100K	5K	Lib.	P.C.	NDP	CA	
Que. Und.	629	7	23	239	360	71	16	48	50	79	144	87	606	135	220	156	118	183	90	77	141
UNWEIGHED SAMPLE 4 106	620	4	27	312	277	124	22	53	27	39	116	95	593	198	180	147	95	194	92	73	128
WEIGHED SAMPLE 4 100	33	31	35	36	30	38	27	38	31	43	24	33	33	37	27	34	36	38	35	37	33
Totally confident 84 21	50	36	37	50	51	51	42	44	55	40	55	49	50	48	49	54	49	50	49	42	55
Somewhat confident - 52	9	-	15	7	10	4	19	4	8	8	13	8	8	6	12	6	12	6	12	12	6
Not too confident - 9	6	19	-	7	5	7	-	7	3	4	6	6	6	6	9	5	2	3	4	7	4
Not at all confident - 12	2	14	5	1	3	-	6	8	3	5	2	4	2	3	3	2	1	2	1	-	2
DK/NA - 5																					

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

23. F What is the main reason why you are [totally/somewhat] confident in the accuracy of your gas meter?

Subsample: Respondents who have some responsibility for paying the gas bill in their household and are totally or somewhat confident in the accuracy of their gas meter

MEMBER	GENDER		A G E				MARITAL STATUS		KIDS <18 AT HOME	LANGUAGE AT HOME		RELIGION		NON-BRIT IMMIGRANT			TENURE	UNION			
	Male	Female	18 to 29	30 to 44	45 to 59	60 or more	Single	Married	Yes	No	English	French	Catholic	Protestant	Ag	Eur	Oth	Own	Rent	Yes	
UNWEIGHTED SAMPLE	517	266	251	43	193	159	109	139	376	221	295	478	21	135	210	143	28	25	457	60	96
WEIGHTED SAMPLE	514	260	254	47	189	135	131	140	371	217	296	471	23	137	203	146	32	30	454	60	87
Trust them/never had any problems	19	21	17	19	19	21	19	20	19	17	21	20	10	21	21	18	23	19	19	20	23
Bill is consistent/accurate/not expensive	18	16	21	8	14	19	27	17	19	17	20	18	26	16	23	16	36	11	19	17	11
Never thought to question/assume it works	17	17	16	13	15	19	21	19	16	14	19	17	4	13	15	22	11	18	18	11	12
Do not trust the company/bill/meter	16	20	11	13	24	13	9	11	18	20	13	17	7	15	17	15	3	6	15	24	28
Know how to read it/monitor use	9	10	8	8	5	12	12	8	9	8	10	8	10	10	8	9	8	25	10	3	9
I do not know how to read meter	8	8	8	11	9	7	9	9	8	10	8	8	13	10	6	10	9	7	9	5	7
Variation/extreme fluctuation in bills	8	6	9	10	8	6	8	7	8	9	7	8	-	9	7	7	3	3	8	5	8
New meter/recent meter maintenance	7	8	6	10	7	9	5	9	7	7	7	7	14	9	5	9	13	-	7	10	8
Gas bill too high	4	2	6	13	2	2	6	5	4	3	5	4	-	3	4	4	9	6	4	3	2
Other	2	3	2	4	2	2	3	3	2	1	3	2	-	2	3	2	3	-	2	5	-
None/nothing	*	-	*	-	-	1	-	1	-	-	*	*	-	1	-	-	-	-	*	-	-
DK/NA	4	4	5	9	4	6	1	5	4	6	4	3	16	8	2	2	7	13	4	6	5

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

23. F What is the main reason why you are [totally/somewhat] confident in the accuracy of your gas meter?

Subsample: Respondents who have some responsibility for paying the gas bill in their household and are totally or somewhat confident in the accuracy of their gas meter

	EMPLOYMENT STATUS					OCCUPATION							HOUSEHOLD INCOME					EDUCATION				
	Full	Part	Home	Un	Ret	Work	Prof	Tech	Off.	Sk/	Un-	Less	\$20K	\$30K	\$40K	\$60K	\$80K	Less	Coll	Coll		
Score Univ	TOTAL	Time	Time	er	oyed	ired	Wm.	OLB	OSB	Serv	Skil	Work	\$20K	\$30K	\$40K	\$60K	\$80K	More	H.S.	H.S.	Voca	
Univ Deg.																						
UNWEIGHED SAMPLE	517	265	46	27	8	98	158	119	61	76	75	26	30	40	56	96	96	128	35	100	154	
56 171																						
WEIGHED SAMPLE	514	255	42	26	8	113	154	117	61	71	70	22	27	43	51	89	97	135	36	99	149	
56 173																						
Trust them/never had	19	17	30	12	-	21	16	16	17	23	22	20	27	23	18	20	20	19	23	18	23	
20 16																						
any problems	18	14	21	28	22	26	17	14	11	16	19	14	15	32	13	24	11	18	27	20	18	
27 13																						
Bill is consistent/	17	16	16	17	13	17	15	20	19	16	16	7	22	15	8	15	15	23	10	11	15	
11 25																						
accurate/not	16	22	13	13	-	7	16	15	26	18	22	24	3	6	24	18	18	15	13	13	23	
8 15																						
expensive	9	7	11	10	8	12	10	11	10	6	7	2	13	9	6	4	10	11	8	11	4	
11 12																						
Never thought to	8	8	8	4	-	8	9	12	6	7	8	10	4	2	11	7	13	9	-	2	12	
11 10																						
question/assume it	8	6	7	12	13	12	7	5	1	10	7	4	5	5	17	8	8	5	7	13	6	
6 7																						
works	7	8	1	6	22	6	6	11	6	5	9	8	5	11	8	6	7	7	9	5	6	
12 8																						
Do not trust the	4	5	-	2	6	6	6	2	8	5	-	13	5	12	7	2	3	4	10	9	4	
8 15																						
company/bill/meter	2	2	1	4	-	3	1	*	5	-	1	5	4	2	-	3	1	1	-	5	3	
11 12																						
Know how to read it/	*	*	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	1	-	
11 10																						
monitor use	4	6	3	-	24	1	6	4	10	2	2	10	7	1	4	4	6	3	-	4	7	
11 10																						
I do not know how to																						
11 10																						
read meter																						
11 10																						
Variation/extreme																						
6 7																						
fluctuation in																						
11 10																						
bills																						
11 10																						
New meter/recent																						
12 8																						
meter maintenance																						
11 10																						
Gas bill too high																						
2 1																						
Other																						
1 1																						
None/nothing																						
-																						
1 5																						

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

23. F What is the main reason why you are [totally/somewhat] confident in the accuracy of your gas meter?

Subsample: Respondents who have some responsibility for paying the gas bill in their household and are totally or somewhat confident in the accuracy of their gas meter

PREFERENCE	REGION				SUB-REGIONS				COMMUNITY SIZE				FED. POLITICAL			
	Atl. Que	Ont	West ern	Van Tor	Man.	Sask	Alb	Can. excl	100K to 1M	5K to 10K	Less than 5K	Lib.	P.C.	NDP	CA	
UNWEIGHED SAMPLE 3 77	517	5 17	203 292	63 11	39 42	64 115	71 500	113 165	138 101	161 76	60 121					
WEIGHED SAMPLE 3 73	514	3 19	267 225	110 15	43 23	32 92	78 495	168 137	128 81	172 77	58 112					
Trust them/never had any problems	19	10 11	18 22	17 10	32 11	19 22	28 20	20 20	11 21	30 19	23 17	20				
Bill is consistent/accurate/not expensive	18	33 19	19 17	26 21	11 16	25 18	13 18	21 15	19 18	18 18	27 13	15				
Never thought to question/assume it works	17	33 6	19 15	21 8	13 10	21 14	14 17	18 19	15 12	17 19	21 21	21				
Do not trust the company/bill/meter	16	21 20	14 18	11 26	5 24	20 21	11 16	11 23	14 18	15 10	11 18	18				
Know how to read it/monitor use	9	- 13	8 10	6 16	10 9	6 13	10 9	8 8	7 7	17 12	8 7	10				
I do not know how to read meter	8	- -	8 9	10 -	18 4	5 7	15 9	11 8	7 5	10 5	8 10	10				
Variation/extreme fluctuation in bills	8	- -	8 8	6 -	6 13	1 10	8 8	6 8	9 10	8 12	3 8	8				
New meter/recent meter maintenance	7	- 17	6 8	6 9	5 12	11 7	7 7	6 7	8 9	7 7	13 6	6				
Gas bill too high	4	- -	5 4	5 -	3 12	5 1	5 4	4 5	4 3	3 3	9 3	3				
Other	2	- -	2 3	- -	3 6	- 4	3 2	1 4	2 1	3 2	2 2	2				
None/nothing	*	- -	* -	- -	- -	- -	- *	- -	- 1	- -	- -	-				
DK/NA	4	13 19	5 2	6 18	2 2	3 2	3 4	6 6	3 4	2 4	4 7	4				

23. F What is the main reason why you are [totally/somewhat] confident in the accuracy of your gas meter?

Subsample: Respondents who have some responsibility for paying the gas bill in their household and are totally or somewhat confident in the accuracy of their gas meter

	Q22F. CONFIDENT IN ACCUR. OF GAS METER				
	TOTAL	Totally		Somewhat	
		Con.	Con.	Con.	Con.
UNWEIGHTED SAMPLE	517	204	313	-	-
WEIGHTED SAMPLE	514	206	308	-	-
Trust them/never had any problems	19	25	15	-	-
Bill is consistent/accurate/not expensive	18	33	9	-	-
Never thought to question/assume it works	17	22	13	-	-
Do not trust the company/bill/meter	16	1	26	-	-
Know how to read it/monitor use	9	14	6	-	-
I do not know how to read meter	8	1	13	-	-
Variation/extreme fluctuation in bills	8	1	12	-	-
New meter/recent meter maintenance	7	12	4	-	-
Gas bill too high	4	-	7	-	-
Other	2	1	3	-	-
None/nothing	*	*	-	-	-
DK/NA	4	4	4	-	-

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

23. F What is the main reason why you are [not too/not at all] confident in the accuracy of your gas meter?

Subsample: Respondents who have some responsibility for paying the gas bill in their household and are not too or not at all confident in the accuracy of their gas meter

MEMBER	GENDER		A G E				MARITAL STATUS		KIDS <18 AT HOME	LANGUAGE AT HOME		RELIGION		NON-BRIT IMMIGRANT		TENURE	UNION				
	Male	Female	18-29	30-44	45-59	60+	Single	Married	Yes	No	English	French	Catholic	Protestant	Ag	Other	Own	Rent	Yes		
UNWEIGHED SAMPLE	93	45	48	15	38	26	11	25	67	41	50	83	6	30	29	25	7	11	68	23	19
WEIGHED SAMPLE	90	41	49	15	39	19	14	24	65	40	49	79	7	30	25	25	7	13	65	24	17
Do not trust the company/bill/meter	36	40	32	55	36	23	27	30	38	38	35	37	43	28	34	39	38	29	36	38	51
Variation/extreme fluctuation in bills	24	32	18	6	30	31	22	20	26	26	23	24	-	29	17	26	22	32	31	5	30
I do not know how to read meter	24	11	35	22	18	12	44	37	19	19	27	21	54	33	22	4	46	45	23	25	20
Gas bill too high	22	20	23	13	21	31	22	19	22	18	24	24	-	12	44	18	-	6	18	31	5
Never thought to question/assume it works	5	3	7	8	6	-	9	-	7	5	5	6	-	4	5	9	20	-	5	5	-
Know how to read it/monitor use	2	4	-	-	5	-	-	3	2	3	2	1	-	4	3	-	-	8	3	-	6
New meter/recent meter maintenance	1	-	2	-	-	5	-	-	2	-	2	1	-	-	4	-	-	-	2	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DK/NA	3	2	3	-	-	7	7	4	2	-	5	1	18	4	-	4	-	-	2	5	-

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

23. F What is the main reason why you are [not too/not at all] confident in the accuracy of your gas meter?

Subsample: Respondents who have some responsibility for paying the gas bill in their household and are not too or not at all confident in the accuracy of their gas meter

	EMPLOYMENT STATUS					OCCUPATION					HOUSEHOLD INCOME					EDUCATION					
	TOTAL	Time	Time	er		oyed	ired	Wm.	OLB	OSB	Serv	Skil	Work	\$20K	\$30K	\$40K	\$60K	\$80K	More	H.S.	H.S.
UNWEIGHED SAMPLE	93	53	9	2	4	8	36	27	9	16	19	1	6	10	8	22	14	16	6	18	26
WEIGHED SAMPLE	90	50	9	2	4	10	37	27	8	15	17	1	5	10	8	20	12	17	6	17	25
Do not trust the company/bill/meter	36	42	28	-	26	19	33	53	21	39	30	-	66	38	13	30	52	27	13	29	41
Variation/extreme fluctuation in bills	24	27	11	55	54	20	21	13	71	30	11	100	19	15	31	33	22	37	37	20	15
I do not know how to read meter	24	24	11	-	-	51	28	30	-	19	23	-	26	39	-	12	31	9	35	14	21
Gas bill too high	22	18	35	45	20	33	27	13	27	16	38	-	15	39	40	21	13	32	29	19	37
Never thought to question/assume it works	5	2	-	-	-	13	3	-	-	7	-	-	-	-	-	5	-	6	-	14	5
Know how to read it/monitor use	2	2	-	-	28	-	-	-	13	5	-	-	-	8	-	5	-	-	-	-	-
New meter/recent meter maintenance	1	2	-	-	-	-	3	4	-	-	-	-	-	-	-	-	-	6	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DK/NA	3	-	14	-	-	10	3	-	-	8	-	-	-	-	16	5	-	-	-	7	4

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

23. F What is the main reason why you are [not too/not at all] confident in the accuracy of your gas meter?

Subsample: Respondents who have some responsibility for paying the gas bill in their household and are not too or not at all confident in the accuracy of their gas meter

PREFERENCE	REGION				SUB-REGIONS							COMMUNITY SIZE				FED. POLITICAL					
	Atl. Que	Ont	West ern	Van Tor	Mont	Que	Alb	Man.	Sask	Alta	B.C.	Que	Can. excl	100K to 1M	5K to 100K	Less than 5K	Lib.	P.C.	NDP	CA	
UNWEIGHTED SAMPLE - 21	93	1	3	33	56	8	3	5	7	11	26	12	90	16	47	15	15	18	13	16	16
WEIGHTED SAMPLE - 21	90	1	4	42	43	14	4	5	3	5	22	13	86	23	38	16	13	17	14	14	13
Do not trust the company/bill/meter - 23	36	100	-	27	47	24	-	40	60	37	55	35	38	23	44	38	33	57	40	14	43
Variation/extreme fluctuation in bills - 22	24	-	-	31	20	39	-	20	28	16	18	23	25	28	20	12	46	9	35	42	23
I do not know how to read meter - 35	24	100	69	26	16	36	69	80	-	9	9	33	22	52	15	16	8	34	9	19	16
Gas bill too high - 33	22	-	-	30	16	26	-	-	26	45	14	8	23	16	27	21	17	13	23	13	22
Never thought to question/assume it works - 5	5	-	-	3	8	-	-	24	-	-	-	28	6	6	-	21	-	-	9	8	-
Know how to read it/monitor use - 2	2	-	-	3	2	-	-	-	-	-	3	-	2	-	3	-	6	-	-	8	6
New meter/recent meter maintenance - 1	1	-	-	2	-	-	-	-	-	-	-	-	1	-	3	-	-	-	-	-	-
Other - 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DK/NA - 3	3	-	31	-	2	-	31	-	-	-	5	-	1	6	-	-	8	6	-	9	-

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

23. F What is the main reason why you are [not too/not at all] confident in the accuracy of your gas meter?

Subsample: Respondents who have some responsibility for paying the gas bill in their household and are not too or not at all confident in the accuracy of their gas meter

	Q22F. CONFIDENT IN ACCUR. OF GAS METER			
	TOTAL	Somewhat Con.	Too Con.	Not Con.
UNWEIGHTED SAMPLE	93	-	-	57 36
WEIGHTED SAMPLE	90	-	-	53 37
Do not trust the company/bill/meter	36	-	-	33 40
Variation/extreme fluctuation in bills	24	-	-	23 25
I do not know how to read meter	24	-	-	19 32
Gas bill too high	22	-	-	15 31
Never thought to question/assume it works	5	-	-	6 4
Know how to read it/monitor use	2	-	-	1 3
New meter/recent meter maintenance	1	-	-	2 -
Other	-	-	-	- -
DK/NA	3	-	-	4 -

24. F Have you ever notified your gas company about a problem with the readings given by your gas meter?

Subsample: Respondents with at least some responsibility for paying the gas bill in their household

MEMBER	GENDER	A G E				MARITAL STATUS		KIDS <18 AT HOME		LANGUAGE AT HOME		RELIGION			NON-BRIT IMMIGRANT			TENURE		UNION	
		Male	Female	29-34	35-44	45-54	55-64	65+	Single	Married	Yes	No	English	French	Other	Catholic	Protestant	Ag. ope.	Other	Own	Rent
Pub				18	30	45	60														Pri
Private lic				Fe	to	to	to	or	Sin	Mar		Eng	Fre		Ath/	Eur	Oth				
Sect Sect	TOTAL	Male	male	29	44	59	more	gle	ried	Yes	No	Lish	nch	Cath	Prot	Ag	ope	er	Own	Rent	Yes
UNWEIGHTED SAMPLE	629	316	313	59	237	194	122	170	455	271	355	577	29	172	240	175	37	38	540	87	117
WEIGHTED SAMPLE	620	305	315	63	235	161	147	169	446	266	352	562	32	173	229	177	40	45	531	88	106
Yes	18	18	19	18	20	15	19	18	18	18	18	19	12	18	22	15	5	16	19	17	20
No	81	82	80	82	79	84	80	79	82	81	81	81	82	81	78	84	95	84	81	81	78
DK/NA	*	-	1	-	-	1	1	1	-	-	1	*	-	1	-	1	-	-	*	-	-

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

	EMPLOYMENT STATUS					OCCUPATION					HOUSEHOLD INCOME					EDUCATION					
	Full Time	Part Time	Home empl	Unempl	Retired	Work ing	Prof Adm.	Tech S.P.	Off. Sale	Sk/ Semi	Un- skill	Less than	\$20K to	\$30K to	\$40K to	\$60K to	\$80K or more	Less than	H.S.	H.S. Coll	Voca
Score Univ	TOTAL	Time	Time	er	oyed	ired	Wm.	OLB	OSB	Serv	Skil	Work	\$20K	\$30K	\$40K	\$60K	\$80K	More	H.S.	H.S.	Voca
Univ Deg.																					
UNWEIGHED SAMPLE 65 210	629	327	60	29	12	108	206	154	72	93	96	29	38	50	66	121	113	147	43	119	187
WEIGHED SAMPLE 65 211	620	314	55	28	12	124	202	152	71	87	88	25	34	53	61	112	111	154	43	117	180
Yes 18 17	18	17	21	29	22	17	19	14	22	20	18	11	14	20	25	18	23	14	24	24	14
No 82 82	81	82	79	71	78	82	80	85	78	79	82	89	82	80	74	82	77	85	73	75	86
DK/NA - -	*	*	-	-	-	1	*	-	-	1	-	-	4	-	-	-	-	-	3	1	-

PREFERENCE	REGION				SUB-REGIONS				COMMUNITY SIZE				FED. POLITICAL								
	Atl. Que	Ont	West ern	Tor	Van	Mont	Que	Alb	Can. excl	100K to 1M	5K to 100K	Less than 5K	Lib.	P.C.	NDP	CA					
Bloc	TOTAL	Prov	hec	ario	Can.	onto	real	ver	Man.	Sask	erta	B.C.	Que	+	Mill	100K	5K	Lib.	P.C.	NDP	CA
Que. Und.																					
UNWEIGHED SAMPLE 4 106	629	7	23	239	360	71	16	48	50	79	144	87	606	135	220	156	118	183	90	77	141
WEIGHED SAMPLE 4 100	620	4	27	312	277	124	22	53	27	39	116	95	593	198	180	147	95	194	92	73	128
Yes 43 23	18	-	11	17	20	8	13	6	20	18	26	14	19	8	22	24	24	17	21	18	17
No 41 76	81	100	82	82	80	92	80	94	80	82	74	86	81	91	77	76	75	82	79	80	83
DK/NA - 1	*	-	-	1	-	-	-	-	-	-	-	-	*	-	1	-	1	1	-	-	-

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

25. F Please tell me whether or not each of the following happened after you notified your gas company about the problem.

a) Your gas company gave you an explanation about your gas consumption and the amount being billed.

Subsample: Respondents who have some responsibility for paying the gas bill in their household and have notified their gas company about a problem with the gas meter readings

MEMBER	GENDER		A G E				MARITAL STATUS		KIDS <18 AT HOME		LANGUAGE AT HOME		RELIGION		NON-BRIT IMMIGRANT		TENURE	UNION			
	Male	Female	18-29	30-44	45-59	60 or more	Single	Married	Yes	No	English	French	Catholic	Protestant	Ag	Other	Own	Rent	Yes		
UNWEIGHTED SAMPLE 5 19	125	62	63	11	49	37	22	35	88	55	68	117	4	33	55	29	3	8	109	15	27
WEIGHTED SAMPLE 5 14	114	55	59	11	47	24	28	31	82	49	64	106	4	30	51	26	2	7	98	15	21
Yes 72 79	67	69	66	62	71	68	62	70	66	68	66	67	36	58	75	57	100	48	70	46	76
No 15	30	27	32	38	27	32	29	30	30	30	29	29	64	38	25	35	-	24	26	54	15
DK/NA 28 6	3	4	3	-	2	-	10	-	4	2	5	3	-	4	-	8	-	29	4	-	10

MEMBER	EMPLOYMENT STATUS				OCCUPATION				HOUSEHOLD INCOME					EDUCATION							
	Full Time	Part Time	Home mak er	Un empl Ret	Work ing Wm.	Prof Adm.	Tech S.P.	Off. Sale	Sk/ Semi	Un- skil	Less than \$20K	\$20K to \$30K	\$30K to \$40K	\$40K to \$60K	\$60K to \$80K	Less than \$80K	H.S.	H.S. or more	Voca Coll		
UNWEIGHTED SAMPLE 13 39	125	61	14	8	3	18	43	23	17	21	20	4	6	12	15	23	27	21	10	30	30
WEIGHTED SAMPLE 12 36	114	52	12	8	3	21	38	21	15	17	16	3	5	11	15	20	25	21	10	28	26
Yes 48 71	67	64	77	75	61	60	66	73	70	65	78	12	64	42	46	73	76	72	62	62	77
No 52 29	30	33	20	25	39	34	33	27	28	35	17	88	36	46	45	27	24	25	25	30	23
DK/NA - -	3	4	2	-	-	6	1	-	2	-	5	-	-	12	9	-	-	4	13	7	-



*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

	EMPLOYMENT STATUS					OCCUPATION					HOUSEHOLD INCOME					EDUCATION					
	Full Time	Part Time	Home mak	Unempl	Retired	Work ing	Prof Adm.	Tech S.P.	Off. Sale	Sk/ Semi	Un- skill	Less than	\$20K to	\$30K to	\$40K to	\$60K to	\$80K or more	Less than	H.S.	H.S. Coll	Voca
Score Univ																					
Univ Deg.																					
UNWEIGHED SAMPLE	125	61	14	8	3	18	43	23	17	21	20	4	6	12	15	23	27	21	10	30	30
WEIGHED SAMPLE	114	52	12	8	3	21	38	21	15	17	16	3	5	11	15	20	25	21	10	28	26
Yes	57	53	59	49	-	62	52	62	51	65	48	28	70	61	62	37	65	58	45	50	54
No	41	45	35	51	100	38	46	34	49	33	49	72	30	39	38	61	32	40	55	47	42
DK/NA	1	2	6	-	-	-	2	3	-	2	3	-	-	-	-	2	3	2	-	2	3

PREFERENCE	REGION			SUB-REGIONS					COMMUNITY SIZE				FED. POLITICAL								
	Atl. Que	Ont	West ern	Tor	Mont	Van cou	Alb	Can. excl	100K to 1M	5K to 100K	Less than 5K	Lib.	P.C.	NDP	CA						
Bloc																					
Que. Und.																					
UNWEIGHED SAMPLE	125	-	2	45	78	6	2	3	11	18	37	12	123	11	50	36	28	33	20	16	27
WEIGHED SAMPLE	114	-	3	54	56	10	3	3	5	7	30	14	111	17	39	35	23	33	20	13	22
Yes	57	-	46	53	62	65	46	68	63	56	70	49	58	62	50	57	66	59	70	53	57
No	41	-	54	47	35	35	54	32	37	32	28	51	41	38	49	39	34	40	30	47	38
DK/NA	1	-	-	-	3	-	-	-	-	12	2	-	1	-	1	3	-	1	-	-	5

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

25. F Please tell me whether or not each of the following happened after you notified your gas company about the problem.

c) Your gas company suggested that you contact "Measurement Canada."

Subsample: Respondents who have some responsibility for paying the gas bill in their household and have notified their gas company about a problem with the gas meter readings

MEMBER	GENDER		A G E				MARITAL STATUS		KIDS <18 AT HOME		LANGUAGE AT HOME		RELIGION		NON-BRIT IMMIGRANT		TENURE		UNION		
	Male	Female	18 to 29	30 to 44	45 to 59	60 or more	Single	Married	Yes	No	English	French	Catholic	Protestant	Ag	Eur	Oth	Own	Rent	Yes	Pri
UNWEIGHTED SAMPLE 5 19	125	62	63	11	49	37	22	35	88	55	68	117	4	33	55	29	3	8	109	15	27
WEIGHTED SAMPLE 5 14	114	55	59	11	47	24	28	31	82	49	64	106	4	30	51	26	2	7	98	15	21
Yes 3	4	5	4	-	5	5	5	6	4	4	4	5	-	8	4	1	-	-	2	18	2
No 97	94	95	94	100	91	95	95	88	96	96	93	94	100	92	92	99	100	100	96	82	98
DK/NA 1	2	-	3	-	4	-	-	6	-	-	3	2	-	-	3	-	-	-	2	-	-

  

MEMBER	EMPLOYMENT STATUS				OCCUPATION				HOUSEHOLD INCOME					EDUCATION							
	Full Time	Part Time	Home mak	Un empl	Ret	Work ing	Prof Adm.	Tech S.P.	Off. Sale	Sk/ Semi	Un- skil	Less than \$20K	\$20K to \$30K	\$30K to \$40K	\$40K to \$60K	\$60K to \$80K	Less than \$80K	H.S.	H.S.	Voca Coll	
UNWEIGHTED SAMPLE 13 39	125	61	14	8	3	18	43	23	17	21	20	4	6	12	15	23	27	21	10	30	30
WEIGHTED SAMPLE 12 36	114	52	12	8	3	21	38	21	15	17	16	3	5	11	15	20	25	21	10	28	26
Yes 1	4	6	-	-	-	6	5	6	3	-	9	-	-	12	9	10	1	-	10	5	1
No 94	94	91	100	100	100	94	91	94	97	100	91	100	100	88	91	90	99	92	90	95	99
DK/NA 5	2	3	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

PREFERENCE	REGION				SUB-REGIONS				COMMUNITY SIZE				FED. POLITICAL								
	Atl.	Que	Ont	West ern	Tor	Mont	Van cou	Alb	Can. excl	1 Mill	100K to 1	5K to	Less than	Lib.	P.C.	NDP	CA				
Bloc	TOTAL	Prov	hec	ario	Can.	onto	real	ver	Man.	Sask	erta	B.C.	Que	+	Mill	100K	5K	Lib.	P.C.	NDP	CA
Que. Und.																					
UNWEIGHED SAMPLE 1 26	125	-	2	45	78	6	2	3	11	18	37	12	123	11	50	36	28	33	20	16	27
WEIGHED SAMPLE 2 23	114	-	3	54	56	10	3	3	5	7	30	14	111	17	39	35	23	33	20	13	22
Yes	4	-	46	4	2	-	46	-	8	10	-	-	3	8	6	-	5	5	-	14	6
No	94	-	54	92	98	84	54	100	92	90	100	100	95	82	94	100	95	89	100	86	94
DK/NA	2	-	-	3	-	16	-	-	-	-	-	-	2	10	-	-	-	5	-	-	-

26. F a) Did anything else happen when you notified your gas company?

Subsample: Respondents with some responsibility for paying the gas bill in their household who have notified their gas company about a problem with the gas meter readings

MEMBER	GENDER	A G E				MARITAL STATUS		KIDS <18 AT HOME		LANGUAGE AT HOME		RELIGION			NON-BRIT IMMIGRANT		TENURE	UNION			
		Fe	to	to	to	or	Sin	Mar	Yes	No	Eng	Fre	Cath	Prot	Ag	ope	er	Own	Rent	Yes	
Pub			18	30	45	60															Pri
vate lic	TOTAL	Male	male	29	44	59	more	gle	ried	Yes	No	lish	nch	Cath	Prot	Ag	ope	er	Own	Rent	Yes
Sect Sect																					
UNWEIGHED SAMPLE 5 19	125	62	63	11	49	37	22	35	88	55	68	117	4	33	55	29	3	8	109	15	27
WEIGHED SAMPLE 5 14	114	55	59	11	47	24	28	31	82	49	64	106	4	30	51	26	2	7	98	15	21
Yes	27	37	18	28	27	25	31	17	32	30	26	28	-	26	29	28	-	28	28	23	23
No	73	63	82	72	73	75	69	83	68	70	74	72	100	74	71	72	100	72	72	77	77
DK/NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

	EMPLOYMENT STATUS					OCCUPATION					HOUSEHOLD INCOME					EDUCATION						
	Full Time	Part Time	Home mak	Unempl	Ret	Work ing	Prof Adm.	Tech S.P.	Off. Sale	Sk/ Semi	Un- skil	Less than	\$20K to	\$30K to	\$40K to	\$60K to	\$80K or more	Less than	H.S.	H.S.	Voca Coll	
Score Univ																						
Univ Deg.																						
UNWEIGHED SAMPLE	125	61	14	8	3	18	43	23	17	21	20	4	6	12	15	23	27	21	10	30	30	
WEIGHED SAMPLE	114	52	12	8	3	21	38	21	15	17	16	3	5	11	15	20	25	21	10	28	26	
Yes	27	21	8	37	81	37	17	22	24	15	13	84	9	9	42	21	27	41	25	23	18	
No	73	79	92	63	19	63	83	78	76	85	87	16	91	91	58	79	73	59	75	77	82	
DK/NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

PREFERENCE	REGION			SUB-REGIONS					COMMUNITY SIZE				FED. POLITICAL								
	Atl. Que	Ont	West ern	Tor	Mont	Van cou	Alb	Can. excl	100K to 100K	5K to 100K	Less than	Lib.	P.C.	NDP	CA						
Bloc																					
Que. Und.																					
UNWEIGHED SAMPLE	125	-	2	45	78	6	2	3	11	18	37	12	123	11	50	36	28	33	20	16	27
WEIGHED SAMPLE	114	-	3	54	56	10	3	3	5	7	30	14	111	17	39	35	23	33	20	13	22
Yes	27	-	46	26	27	51	46	38	30	19	23	40	27	48	24	27	19	23	32	26	31
No	73	-	54	74	73	49	54	62	70	81	77	60	73	52	76	73	81	77	68	74	69
DK/NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

26. F b) What was it?

Subsample: Respondents with some responsibility for paying the gas bill in their household and who said that something else happened when they notified their gas company about a problem with the gas meter readings

MEMBER	GENDER		A G E				MARITAL STATUS		KIDS <18	LANGUAGE AT HOME		RELIGION	NON-BRIT IMMIGRANT			TENURE	UNION				
	Male	Female	18	30	45	60	Single	Married	Yes	No	English	French	Catholic	Protestant	Ag	Other	Own	Rent	Yes		
UNWEIGHED SAMPLE 2 2	32	22	10	3	11	10	7	5	27	14	18	31	-	10	14	7	-	2	29	3	6
WEIGHTED SAMPLE 2 1	31	20	11	3	12	6	9	5	26	15	17	30	-	8	15	7	-	2	28	3	5
Reduced bill/ corrected mistake	52	38	80	100	70	44	9	67	49	71	36	54	-	30	60	54	-	46	47	100	51
Changed/replaced meter	36	50	10	-	34	17	69	15	40	31	40	34	-	32	36	46	-	54	40	-	29
They did not reduce my bill/increased my bill	7	11	-	-	-	6	22	-	9	2	12	8	-	-	15	-	-	-	8	-	-
Ignored me	3	5	-	-	-	16	-	-	4	-	6	3	-	12	-	-	-	-	3	-	-
Other	7	5	10	-	9	17	-	19	4	8	6	7	-	26	-	-	-	-	8	-	20
DK/NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

	EMPLOYMENT STATUS					OCCUPATION					HOUSEHOLD INCOME					EDUCATION					
	Full Time	Part Time	Home mak	Unempl	Retired	Work ing	Prof Adm.	Tech S.P.	Off. Sale	Sk/ Semi	Un- skil	Less than	\$20K to	\$30K to	\$40K to	\$60K to	\$80K or more	Less than	H.S.	H.S. Coll	Voca
Score Univ	TOTAL	Time	Time	er	oyed	ired	Wm.	OLB	OSB	Serv	Skil	Work	\$20K	\$30K	\$40K	\$60K	\$80K	More	H.S.	H.S.	Voca
Univ Deg.																					
UNWEIGHTED SAMPLE	32	12	1	3	2	7	6	6	3	3	2	3	1	1	6	4	8	8	3	8	4
WEIGHTED SAMPLE	31	11	1	3	2	8	7	5	4	3	2	2	0	1	6	4	7	9	3	7	5
Reduced bill/ corrected mistake	52	67	100	66	-	10	83	68	71	28	52	45	100	-	55	50	32	56	-	37	100
Changed/replaced meter	36	10	-	34	53	66	-	25	74	30	-	14	-	100	28	26	54	38	63	32	36
They did not reduce my bill/increased my bill	7	3	-	-	-	24	-	8	-	-	-	-	-	-	-	-	-	26	-	-	-
Ignored me	3	-	-	-	47	-	-	-	-	-	-	41	-	-	-	24	-	-	37	-	-
Other	7	19	-	-	-	17	-	-	43	48	-	-	-	17	-	14	-	-	31	-	-
DK/NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

26. F b) What was it?

Subsample: Respondents with some responsibility for paying the gas bill in their household and who said that something else happened when they notified their gas company about a problem with the gas meter readings

	REGION					SUB-REGIONS					COMMUNITY SIZE				FED. POLITICAL						
	Atl.	Que	Ont	West ern	Van Tor	Man.	Sask	Alb	erta	B.C.	Que	+ Mill	100K to	5K to	Less than	Lib.	P.C.	NDP	CA		
Bloc	TOTAL	Prov	hec	ario	Can.	onto	real	ver	Man.	Sask	erta	B.C.	Que	+ Mill	100K	5K	Lib.	P.C.	NDP	CA	
Que. Und.																					
UNWEIGHTED SAMPLE	32	-	1	11	20	3	1	1	3	4	8	5	31	5	12	9	6	8	5	4	8
WEIGHTED SAMPLE	31	-	1	14	15	5	1	1	2	1	7	5	30	8	9	10	4	8	6	3	7
Reduced bill/ corrected mistake	52	-	100	55	46	64	100	-	100	-	49	36	50	60	46	53	51	74	48	13	36
Changed/replaced meter	36	-	-	29	46	32	-	100	-	75	51	47	38	37	38	27	49	21	21	59	50
They did not reduce my bill/increased my bill	7	-	-	13	2	36	-	-	-	25	-	-	8	24	4	-	-	4	31	-	-
Ignored me	3	-	-	-	6	-	-	-	-	-	-	-	18	3	-	-	10	-	-	-	14
Other	7	-	-	15	-	-	-	-	-	-	-	-	7	-	12	10	-	-	-	28	-
DK/NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

27. F How would you rate the way your gas company resolved your situation on a scale from 1 to 10, where 10 means

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

you are totally satisfied with the resolution and 1 means you are not at all satisfied with the resolution.  
You can pick any number from 1 to 10.

Subsample: Respondents with some responsibility for paying the gas bill in their household who have notified their gas company about a problem with the gas meter readings

MEMBER	GENDER		A G E				MARITAL STATUS		KIDS <18	LANGUAGE		RELIGION		NON-BRIT		TENURE	UNION				
	Male	Female	18	30	45	60	Single	Married	Yes	No	Eng	Fre	Cath	Prot	Ag	Ope	er	Own	Rent	Yes	
Pub																					Pri
vate lic																					
Sect Sect																					
UNWEIGHED SAMPLE	125	62	63	11	49	37	22	35	88	55	68	117	4	33	55	29	3	8	109	15	27
WEIGHED SAMPLE	114	55	59	11	47	24	28	31	82	49	64	106	4	30	51	26	2	7	98	15	21
Totally satisfied	21	19	22	23	15	15	28	24	18	12	26	20	-	8	29	21	-	28	20	27	10
...[9]	2	-	4	-	5	-	-	3	2	2	3	2	-	-	2	7	-	-	3	-	-
...[8]	14	12	16	9	12	17	19	8	16	12	16	13	49	10	17	8	-	-	13	20	26
...[7]	15	13	17	17	15	13	14	28	11	15	15	16	-	14	15	13	-	-	16	7	16
...[6]	3	2	3	-	3	7	-	6	2	4	2	3	-	3	2	4	23	7	3	-	4
...[5]	14	17	11	9	13	13	19	1	19	14	14	14	25	9	15	19	-	33	14	10	15
...[4]	10	12	7	11	11	14	5	6	11	14	7	9	-	18	7	6	77	15	9	12	14
...[3]	7	10	4	9	4	10	7	14	4	4	8	6	27	9	6	5	-	-	6	9	-
...[2]	5	8	2	11	6	-	5	4	5	8	2	5	-	13	-	5	-	18	5	-	11
Not at all satisfied	11	8	13	11	16	11	4	7	13	15	8	12	-	16	7	12	-	-	10	16	5
DK/NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average rating	6.1	5.7	6.4	5.7	5.7	5.8	6.8	6.5	5.9	5.3	6.6	6.0	5.9	4.6	6.9	6.0	4.5	5.8	6.1	6.1	6.0
3.5 6.8																					

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

27. F How would you rate the way your gas company resolved your situation on a scale from 1 to 10, where 10 means you are totally satisfied with the resolution and 1 means you are not at all satisfied with the resolution. You can pick any number from 1 to 10.

Subsample: Respondents with some responsibility for paying the gas bill in their household who have notified their gas company about a problem with the gas meter readings

	EMPLOYMENT STATUS					OCCUPATION					HOUSEHOLD INCOME					EDUCATION							
	Full	Part	Home mak	Unempl	Ret	Work ing	Prof Adm.	Tech S.P.	Off. Sale	Sk/ Semi	Un- skil	Less than	\$20K to	\$30K to	\$40K to	\$60K to	\$80K or more	Less than	H.S.	H.S.	Voca Coll		
UNWEIGHED SAMPLE	125	61	14	8	3	18	43	23	17	21	20	4	6	12	15	23	27	21	10	30	30		
WEIGHED SAMPLE	114	52	12	8	3	21	38	21	15	17	16	3	5	11	15	20	25	21	10	28	26		
Totally satisfied	21	16	23	38	-	30	21	20	14	-	22	12	71	19	14	16	21	18	35	27	8		
15 23	...	[9]	2	2	-	-	-	7	-	5	10	-	-	-	-	-	-	8	-	-	-		
- 7	...	[8]	14	17	-	12	-	20	12	21	7	12	13	-	-	15	30	-	8	17	25	13	4
25 13	...	[7]	15	11	21	-	-	18	17	8	16	23	22	-	-	30	7	5	12	23	10	11	34
3 11	...	[6]	3	2	7	-	-	-	2	2	6	2	3	-	-	4	7	6	-	-	-	2	3
- 6	...	[5]	14	16	24	10	-	12	10	11	8	23	12	53	-	12	5	18	31	4	8	14	17
20 11	...	[4]	10	11	16	-	61	6	10	17	34	3	2	-	9	12	3	20	3	15	-	5	9
7 18	...	[3]	7	7	-	12	-	9	4	-	-	10	12	-	20	3	5	13	-	13	-	-	11
22 5	...	[2]	5	8	-	-	-	-	3	6	3	6	-	-	-	-	16	5	2	-	13	9	5
- -	...	[1]	11	12	9	28	39	5	15	14	7	10	15	34	-	5	14	16	23	3	9	19	9
Not at all satisfied	11	12	9	28	39	5	15	14	7	10	15	34	-	5	14	16	23	3	9	19	9		
9 8																							
DK/NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- -																							
Average rating	6.1	5.7	6.1	5.9	2.8	7.0	6.2	5.9	5.7	5.4	6.1	4.2	8.1	6.6	5.6	4.7	5.5	6.6	6.9	5.9	5.4		
5.7 6.5																							

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

27. F How would you rate the way your gas company resolved your situation on a scale from 1 to 10, where 10 means you are totally satisfied with the resolution and 1 means you are not at all satisfied with the resolution. You can pick any number from 1 to 10.

Subsample: Respondents with some responsibility for paying the gas bill in their household who have notified their gas company about a problem with the gas meter readings

PREFERENCE	REGION				SUB-REGIONS				COMMUNITY SIZE				FED. POLITICAL								
	Atl.	Que	Ont	West em	Tor	Van Mont	Alb	Can. excl	100K to 1M	5K to 100K	Less than 5K	Lib.	P.C.	NDP	CA						
UNWEIGHED SAMPLE	125	-	2	45	78	6	2	3	11	18	37	12	123	11	50	36	28	33	20	16	27
WEIGHED SAMPLE	114	-	3	54	56	10	3	3	5	7	30	14	111	17	39	35	23	33	20	13	22
Totally satisfied	21	-	-	26	17	16	-	-	22	14	21	7	21	10	11	32	27	22	32	11	11
...[9]	2	-	-	3	1	16	-	-	-	-	3	-	2	10	2	-	-	-	4	-	-
...[8]	14	-	100	12	11	-	100	-	10	15	12	8	12	18	15	7	20	11	5	10	22
...[7]	15	-	-	9	21	16	-	-	-	18	23	27	15	10	6	21	24	15	16	8	25
...[6]	3	-	-	2	4	-	-	-	25	11	-	-	3	-	5	3	2	6	-	-	6
...[5]	14	-	-	9	19	-	-	68	-	22	16	34	14	14	18	15	4	14	9	9	14
...[4]	10	-	-	11	8	16	-	-	17	16	5	9	10	10	15	7	4	10	12	22	11
...[3]	7	-	-	6	8	18	-	-	7	5	13	-	7	11	5	5	10	6	11	7	3
...[2]	5	-	-	9	1	-	-	-	10	-	-	-	5	-	10	-	6	3	9	10	-
Not at all satisfied	11	-	-	13	9	16	-	32	10	-	8	15	11	17	13	9	5	14	-	23	7
DK/NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average rating	6.1	-	8.0	6.0	6.1	5.6	8.0	3.7	5.6	6.4	6.3	5.4	6.0	5.7	5.2	6.8	6.8	5.9	6.6	4.4	6.3
8.0 6.2																					

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

28. F Before this survey was begun, were you aware of a government organization called "Measurement Canada" that can review and deal with your complaints if you are not satisfied with your treatment by your gas company?

Subsample: Respondents who have notified their gas company about a problem with the gas meter readings

MEMBER	GENDER		A G E				MARITAL STATUS		KIDS <18 AT HOME	LANGUAGE AT HOME		RELIGION		NON-BRIT IMMIGRANT		TENURE	UNION					
	Male	Female	18	30	45	60	Single	Married	Yes	No	English	French	Catholic	Protestant	Ag	Other	Own	Rent	Yes			
Pub																				Pri		
vate lic																						
Sect Sect																						
UNWEIGHED SAMPLE	125	62	63	11	49	37	22	35	88	55	68	117	4	33	55	29	3	8	109	15	27	
5 19																						
WEIGHED SAMPLE	114	55	59	11	47	24	28	31	82	49	64	106	4	30	51	26	2	7	98	15	21	
5 14																						
Yes	14	21	8	9	16	11	18	14	15	16	13	14	-	12	17	14	-	26	14	16	13	
- 12																						
No	85	77	92	91	81	89	82	86	84	84	85	85	100	88	83	86	100	74	85	84	87	
100 88																						
DK/NA	1	2	-	-	2	-	-	-	1	-	2	1	-	-	-	-	-	-	1	-	-	
- -																						

  

MEMBER	EMPLOIMENT STATUS				OCCUPATION				HOUSEHOLD INCOME					EDUCATION								
	Full Time	Part Time	mak er	Home Un empl Ret	Work ing	Prof Adm.	Tech S.P.	Off. Sale	Sk/ Semi	Un- skill	Less than \$20K	\$20K to \$30K	\$30K to \$40K	\$40K to \$60K	\$60K to \$80K	Less or more than	H.S.	H.S.	Voca Coll			
Some Univ																						
Univ Deg.																						
UNWEIGHED SAMPLE	125	61	14	8	3	18	43	23	17	21	20	4	6	12	15	23	27	21	10	30	30	
13 39																						
WEIGHED SAMPLE	114	52	12	8	3	21	38	21	15	17	16	3	5	11	15	20	25	21	10	28	26	
12 36																						
Yes	14	7	15	-	-	25	9	10	18	6	16	50	41	16	21	16	3	16	14	12	7	
40 14																						
No	85	91	85	100	100	75	91	90	82	94	78	50	59	84	79	84	97	84	86	85	93	
60 86																						
DK/NA	1	2	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	4	-	
- -																						

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

PREFERENCE	REGION				SUB-REGIONS				COMMUNITY SIZE				FED. POLITICAL									
	Atl.	Que	Ont	West ern	Tor	Mont	Van cou	Alb	Can. excl	1 Mill	100K to 1	5K to	Less than	Lib.	P.C.	NDP	CA					
Bloc	TOTAL	Prov	hec	ario	Can.	onto	real	ver	Man.	Sask	erta	B.C.	Que	+	Mill	100K	5K	Lib.	P.C.	NDP	CA	
Que. Und.																						
UNWEIGHTED SAMPLE 1 26	125	-	2	45	78	6	2	3	11	18	37	12	123	11	50	36	28	33	20	16	27	
WEIGHTED SAMPLE 2 23	114	-	3	54	56	10	3	3	5	7	30	14	111	17	39	35	23	33	20	13	22	
Yes - 21	14	-	-	14	15	16	-	-	18	16	14	17	15	10	12	20	11	13	9	24	7	
No 100 74	85	-	100	84	85	84	100	100	82	84	86	83	84	90	85	80	89	87	91	76	93	
DK/NA - 5	1	-	-	2	-	-	-	-	-	-	-	-	1	-	3	-	-	-	-	-	-	

29. F Did you consider filing a complaint with Measurement Canada?

Subsample: Respondents who have notified their gas company about a problem with their gas meter readings and were aware of Measurement Canada before the survey

MEMBER	GENDER		AGE				MARITAL STATUS		KIDS <18 AT HOME		LANGUAGE AT HOME		RELIGION		NON-BRIT IMMIGRANT		TENURE		UNION		
	Male	Female	18-29	30-44	45-59	60 or more	Single	Married	Yes	No	English	French	Catholic	Protestant	Ag	Other	Owned	Rent	Yes	Other	
Pub			18	30	45	60														Pri	
Private Lic																					
Sect Sect	TOTAL	Male	male	29	44	59	more	gle	ried	Yes	No	lish	nch	Cath	Prot	Ag	ope	er	Own	Rent	Yes
UNWEIGHTED SAMPLE - 3	18	13	5	1	8	5	4	5	13	8	10	17	-	5	9	4	-	2	16	2	4
WEIGHTED SAMPLE - 2	16	12	5	1	8	3	5	4	12	8	8	15	-	4	9	4	-	2	14	2	3
Yes - 41	4	6	-	-	-	27	-	16	-	-	8	5	-	-	8	-	-	-	5	-	25
No - 59	96	94	100	100	100	73	100	84	100	100	92	95	-	100	92	100	-	100	95	100	75
DK/NA - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*How do we guarantee the accuracy of gas meters and the trust of consumers in a changing market?*

	EMPLOYMENT STATUS				OCCUPATION						HOUSEHOLD INCOME					EDUCATION					
	Full Time	Part Time	Home Based	Unempl	Retired	Man. Work	Prof. Adm.	Tech. S.P.	Off. Sale	Sk./Semi	Unskil	Less than \$20K	\$20K to \$30K	\$30K to \$40K	\$40K to \$60K	\$60K to \$80K	Less than \$80K	H.S.	H.S. or more	Voc Coll	
UNWEIGHED SAMPLE	18	5	2	-	-	5	4	3	2	1	3	2	2	3	3	2	3	2	3	1	
WEIGHED SAMPLE	16	4	2	-	-	5	3	2	3	1	2	1	2	2	3	3	1	3	1	3	2
Yes	4	-	38	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-	-	21	-
No	96	100	62	-	-	100	100	100	100	100	72	100	100	100	100	100	100	100	79	100	
DK/NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

PREFERENCE	REGION			SUB-REGIONS				COMMUNITY SIZE				FED. POLITICAL									
	Atl. Que	Ont	West ern	Man. Tor	Onto Mont	Ver cou	Van Alb	Can. excl	1 Mill	100K to 1	5K to 10K	Less than 10K	Lib.	P.C.	NDP	CA					
UNWEIGHED SAMPLE	18	-	-	6	12	1	-	-	2	3	5	2	18	1	6	7	4	4	2	3	2
WEIGHED SAMPLE	16	-	-	8	9	2	-	-	1	1	4	2	16	2	5	7	3	4	2	3	2
Yes	4	-	-	-	8	-	-	-	-	-	16	-	4	-	-	10	-	-	41	-	-
No	96	-	-	100	92	100	-	-	100	100	84	100	96	100	100	90	100	100	59	100	100
DK/NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

## **APPENDIX 4 – DISCUSSION GUIDE**

**JULY 15, 2002**

### **DISCUSSION GUIDE**

### **ENVIRONICS PN 5177**

### **MEASUREMENT CANADA – NATURAL GAS SECTOR REVIEW**

#### **1.0 INTRODUCTION TO PROCEDURES (5 MINUTES)**

Welcome to the group. We want to hear your opinions. Not what you think other people think – but what you think!

Feel free to agree or disagree. Even if you are just one person among ten that takes a certain point of view, you could represent hundreds of thousands of people in the country who feel the same way as you do.

You don't have to direct all your comments to me; you can exchange ideas and arguments with each other too.

You are being taped and observed to help me write my report.

I may take some notes during the group to remind myself of things also.

The hostess (I) will pay you your incentives at the end of the session.

Let's go around the table so that each of you can tell us your name and a little bit about yourself, such as what you do for a living, who lives in your house and what you like to do for fun.

## **2.0 INTRO. TO MEASUREMENT CANADA AND THE CURRENT REGULATORY FRAMEWORK FOR OF METERS (15 MINUTES)**

Today we are going to be talking about issues relating to weights and measures. As far as you know, are weights and measures such as electricity and gas meters or food scales in stores etc...regulated in any way? Is there any level of government or industry that polices whether the meters and scales are sound and reliable and keep to any standards?

Who does this?

Who should be doing this? Should it be the gas utilities or stores? Should it be the government? Some other agency?

In fact, the reliability of weights and measures is the responsibility of a federal government agency called Measurement Canada. Did anyone know this?

I am going to circulate a couple of pages that describe in greater detail how Measurement Canada works and what we are here to discuss.

***Distribute “Backgrounder”***

I want you all to read **Page One Point 1.0** that describes what Measurement Canada does. Were any of you aware of any of this before?

How does it make you feel to know that MC does all these things? Does this make you feel more confident in your meter and in metering in general? Or does it have no impact?

Measurement Canada is conducting what is called a Trade Sector Review. If you read on to **Point 2.0** that starts on page 1 and goes on to the top of page 2 it will explain this in more detail.

Does everyone understand what this Trade Sector Review is all about?

**3.0 DISCUSSION OF NATURAL GAS AND METERS (10 MINUTES)**

Now, I want to talk about natural gas in your home and how it is measured. Let’s discuss our personal experiences with regard to natural gas and meters. Do you have gas heating? Do you pay a gas bill for other appliances? (i.e. a stove, dryer etc...)

Do you scrutinise your gas bill at all? How?

What about your gas meter? Do you ever look at it? How does it work? Is it in your house or external? Do you ever study the readings or try to understand what they mean?

How much confidence do you have in the gas meter itself? I should make it clear now that we are discussing the mechanics of the meter and not the actual gas rates that are charged by your utility and which simply get multiplied against your meter reading.

Why do you trust it? Why don't you trust it?

Have you ever had a dispute about your meter? Do you know of anyone having a dispute or a malfunction with their meter? What happened?

#### **4.0 CHANGES IN GAS METERING AND SAFE GUARDING THE INTERESTS OF CONSUMERS (35 MINUTES)**

Many of you may not have been aware of MC's role in the area before today. If you all read **Section 3.0** in the Backgrounder it will tell you more about this.

*There are a couple of possible changes being proposed in how gas meters are regulated and inspected. Part of the reason why you're here is to get an idea of how you as consumers feel about these possible changes.*

Right now the work involved in regulating meters is divided between Measurement Canada and what are called Alternate Service Delivery Mechanisms or ASDMs. These ASDMs are Measurement Canada accredited organizations - usually the utilities themselves. Since the mid-1980s, the ASDMs have been doing the actual verification of the gas metering devices and also doing the periodic re-verification. They carry these functions out in

accordance with ISO 9002-1994 and Measurement Canada rules and they are audited periodically.

Currently, Measurement Canada is responsible for the approval of prototypes of new metering devices. Measurement Canada develops the standards for new prototypes alone and it also tests the equipment used to test the devices.

What would you think of having ASDMs that have been accredited by Measurement Canada take on these roles? In other words, instead of Measurement Canada having to do this, the accredited organizations would do this.

What about the development of standards for new prototypes? What about the approval of new meter types?

What organizations come to mind that you would trust to carry out this role?

Have any of you ever heard of the Canadian Standards Association (CSA)? CSA is a non-governmental, non-profit organization that develops standards for products and devices in Canada.

Part of this proposal would involve using the CSA to develop gas meter related standards. Right now CSA is not involved in this at all. CSA has a mandate under the National Standard System (NSS) process to bring together experts and stakeholders when they set standards for products. The thinking is that CSA could be the organization that Measurement Canada would use to develop standards using the NSS process that Measurement Canada would adopt as national standards. Measurement Canada would still

approve and audit these standards and would actually make the standards become binding rules.

What do you think of that?

If CSA took on a larger role, would your interests as a gas consumer still be protected? Would they be more or less protected than under the current system where Measurement Canada does all this?

Should consumers be represented at CSA? Is this necessary?

There could also be other alternate mechanisms. For example, MC could accredit meter manufacturers to do the initial verification of the product for the purposes of approval of type. Measurement Canada would audit the process. CSA could work on technical specifications.

Would you as a consumer have anything to lose from this?

Are there things that could be done to make sure that your interests as a consumer are safeguarded?

Do you feel that you, as a consumer who pays a gas bill, need any safeguards from MC? In other words, what is the very least that Measurement Canada should be doing to make you continue to feel confident that your residential gas usage is being accurately measured?

If a metering device has been approved in other countries like Australia or the US, should that be considered good enough for Canada? Or, should there still be a time-consuming testing procedure in Canada as well?

Is this purely an internal technical matter that will make no difference to you as a consumer, or could this potentially have a major impact on you and the confidence you have in your gas bill and in how your usage is measured?

As you may know, there are several consumers' organizations in Canada. If you knew that there would be representation from some of these organizations on the committees that would develop and set standards, how would it make you feel about this process?

THANK YOU FOR YOUR PARTICIPATION

## **APPENDIX 5 – DOCUMENT GIVEN TO THE DISCUSSION GROUP PARTICIPANTS**

### **Background Information**

#### **1. What is Measurement Canada?**

- Have you ever stopped to think about why and how goods are weighed or measured before they are sold each day in Canada? Have you ever wondered about how these weights and measures are standardised and regulated?
- In Canada, weights and measures are a responsibility of the federal government. Measurement Canada (MC) is a government agency that is part of Industry Canada. Its role is to ensure that a fair and accurate weights and measures system exists to protect both buyers and sellers.
- MC's mission is: *“to ensure equity and accuracy where goods and services are bought and sold on the basis of measurement, in order to contribute to a fair and competitive marketplace for Canadians.”*
- MC administers and enforces the Electricity and Gas Inspection Act and the Weights and Measures Act

- There are 39 different business sectors where trade measurement is significant (examples of these are electricity, natural gas, retail food, gasoline, water, taxis etc...)
- MC periodically reviews the need for a role in each sector beyond active monitoring and solicits stakeholders' views as a key element in these decisions, particularly those of vulnerable parties.

## **2. What is a Trade Sector Review?**

Measurement Canada is initiating what is called a Trade Sector Review (TSR). This is a comprehensive review process to determine the most appropriate role for Measurement Canada in a particular trade sector or marketplace. MC is consulting its clients to ensure fair and efficient measurement in all trade sectors. By clients we mean stakeholders who buy and sell a given commodity. This can include: consumers, retailers, utilities etc...

Measurement Canada is responsible for measurement issues in all sectors of the Canadian marketplace. With the increase in the number of devices and the increasingly sophisticated technology used it is becoming more difficult for Measurement Canada to have an effective presence in all areas of the marketplace. For these reasons, the department would like to ensure it focuses its resources in the most important areas and identifies other suitable methods of ensuring that the goal of Measurement Equity is maintained.

There are 39 different trade sectors that have weights or measures that Measurement Canada regulates. A phased approach is being used to review Measurement Canada's role in each of these sectors. The first trade sector reviews include the **electricity sector** the **natural gas sector** and the **retail food sector**, etc. Later on many other sectors such as

mining, forestry, fishing, taxi meters etc...) will be reviewed, with targeted completion by 2013.

### **3. Review of the Natural Gas Sector.**

Measurement Canada has a very direct hands-on role in regulating every detail of how gas meters must function and which ones are certified.

At present, Measurement Canada (MC) directly provides the following services with regard to natural gas measurement:

- Establishes measurement rules and meter requirements.
- Calibrates and certifies measurement standards and test equipment.
- Evaluates and approves new measuring apparatus.
- Does the initial and re-verification auditing and testing of meters and devices.
- Inspects meter installations.
- Investigates measurement disputes and complaints.
- Accredits meter service organizations to test and seal meters on Measurement Canada's behalf.
- Monitors and enforces compliance e.g., audits, revocation of accreditation, prosecutions.

You might be wondering why there needs to be any change to this system. The reasons are that the current system is quite expensive and time-consuming. Measurement Canada is a small agency and doesn't have the resources to directly regulate this area. Also, with all

the new technology in metering for large industrial users and the introduction of new devices, Measurement Canada is not able to keep up in terms of expertise and it is taking a long time for new devices to be approved.

If Measurement Canada can find areas where they can reduce their hands-on role, they will then have resources available to put towards other areas where they need to be doing more.

Also, the gas utilities argue that gas meter disputes are actually quite rare in Canada (i.e.: about 5,000 a year out of 4.5 million customers) with 99% of gas meters passing inspections when there is a dispute. The utilities also claim to pay as much \$50 million a year on measurement and claim that a lot of the cost is incurred because of what they believe to be outdated requirements.

Gas utilities and meter manufacturers feel that the system could be reformed to be more efficient and to allow for faster approval of devices. Measurement Canada is trying to figure out where it should focus its limited resources.