Q. DISTRIBUTION

METERS (POOLED), p. 27 of 81, $1,192,00

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Please explain the Government Retest Order process, including an explanation of why the number of meters required under these criteria has increased significantly in 2004, 2005F, and 2006F.

A. ***General***

Measurement Canada requires all meters to be certified for accuracy for use in billing. The Company maintains a database of all its meters. The database contains information such as meter type, year of purchase, year of certification and certification expiry date. Meters must be either recertified or removed from service prior to the certification expiry date.

Re-certification requirements differ depending on the meter type. For some meter types, energy-only meters for example, the regulations permit re-certification based on test results for a sample of the meter group ("compliance sampling"). For other meter types, demand meters for example, it is necessary to test and certify each individual meter.

Newfoundland Power purchases meters each year to replace those meters removed for inclusion in compliance testing samples. These meter replacements are referred to as "CSOs" (Compliance Sample Orders).

Meters that must be purchased to either (1) replace meter groups that do not pass compliance sample testing or (2) replace demand meters that must be individually tested and re-certified are referred to as "GROs" (Government Retest Orders).

Compliance Sampling of Energy-only Meters

Most energy-only meters used by Newfoundland Power for billing of Domestic Service and General Service Rate 2.1 customers are permitted by regulation to be re-certified based on the testing of a sample of meters in a meter group prior to the expiry of their certification.

The re-certification of a large number of meters based on the testing of a statistical sample can provide substantial cost savings compared to the individual testing of all meters in the group. Newfoundland Power avails of compliance sampling whenever there are sufficient numbers of meters to form a group. Groups are formed based on the information stored in the Company's database.

The grouping of meters for the purpose of sample compliance testing is governed by detailed regulations. Generally, meters in a group must be of the same manufacturer type

or model, the same "seal year", and have the same certification expiry date. New meters and reworked meters[1] cannot be included in the same group.

The regulations do allow meters of the same model and year to be included in different groups, which provides some flexibility in the sizing of groups. Sample testing offers potential savings; however, the inclusion of large numbers of meters in a single group exposes all those meters to the consequences of testing failure. To balance the competing considerations of testing costs and the risks associated with test failures, Newfoundland Power will often limit the size of its meter groups where appropriate. For example, meters of the same model that were supplied at different times during the year may have been manufactured under different conditions. It may therefore be appropriate to include them in different groups for compliance testing.

The certification period, or "seal period", for new meters varies from 6 to 12 years depending on meter type. The older electromechanical energy-only meters were initially certified for a 12-year period; electronic energy-only meters, which are the Company's current standard, are certified for 10 years. Energy-only meters comprise approximately 95% of Newfoundland Power's meters currently in service.

Before a meter group's certification is due to expire, a random sample of meters is selected from the group for compliance testing. Sample sizes vary depending on the number of meters in the meter group, and range from 28 meters for groups of 500 meters or less, to as many as 330 meters for very large meter groups.

Sampling Results

The meters identified for the sample are removed from service and forwarded to an accredited testing facility. If the test results show that the sample meters are within the required accuracy, the certification of the entire meter group from which the sample was taken is extended. The regulations provide for an extension of between 2 and 8 years, depending on the meter type and the results of the accuracy test.

If a significant number of the meters tested fall outside Measurement Canada's accuracy criteria, all remaining meters in the group must be removed from service. These meters must either be recalibrated and resealed, or permanently retired.

Due to the low cost of new energy-only meters and the high cost of replacement parts and labour, it is more economic to purchase new meters than to rework meters that have not passed sample testing. Because energy-only meters comprise the vast majority of Newfoundland Power's meters in service, failure to pass the accuracy test can result in the need to purchase a significant number of new meters.

In addition to the accuracy requirements of the regulations, the physical condition of meters is also important. For example, some meter groups may continue to meet

[1] Reworked meters are those that have been previously removed from service, re-calibrated or refurbished and subsequently returned to service.

Measurement Canada's accuracy requirements, but have faceplates that have faded to the point where they are difficult to identify or read. In 2004, the Company began replacing an increased number of meters that have deteriorated in this manner.

Testing of Demand Meters

Demand meters are not currently eligible for re-certification by compliance sampling, and must be tested individually. Prior to the expiry of their certification, all demand meters must be removed from service, recalibrated and resealed, or permanently retired.

Because demand meters cost significantly more than energy-only meters, it is generally more economical to have them recalibrated and resealed, subject to the meters being in acceptable physical condition.

Changing Recalibration Requirements

Demand meters are given an initial seal period of 6 years. Historically, demand meters have also been eligible to be re-certified for 6 years. However, effective January 1, 2005, demand meters can only be re-certified for 5 years. Effective January 1, 2009, the seal period for demand meters will be further reduced to 4 years.

Measurement Canada is in the process of reviewing all seal periods and sampling programs for revenue meters. It is also working on a compliance sampling program for electronic demand meters. The savings from a program that permits utilities to re-certify electronic demand meters by sample testing may offset, to some extent, the costs associated with the reduced seal periods applicable to demand meters.

Capital Budgeting for Meter Replacements

Table 1 is a summary of required meter replacements for the period 2001 to 2006.

Table 1
GRO/CSO Meter Replacements

Reason	2001 [1]	2002 [1]	2003 [1]	2004	2005F	2006F
GRO						
Meter Type D5S				2,363	7,600	941
Meter Type M1S						1,803
Physical Condition				2,682	1,557	262
Other Meter Types	989	914	464	2,162	1,537	1,872
Total GRO	989	914	464	7,207	10,694	4,878
CSO	915	1,356	991	1,337	1,266	1,547
Total	**1,904**	**2,270**	**1,455**	**8,544**	**11,960**	**6,425**

[1] A breakdown of GROs by the categories shown for 2004 through 2006 is not readily available for 2001 through 2003.

The number of meters due for replacement due to GROs in each year depends mainly on the results of compliance sampling conducted in the previous year. In 2003, two groups of Type D5S domestic meters failed to meet compliance testing criteria, and were therefore replaced in 2004. These two groups contained a total of 2,363 meters.

Another 7,600 Type D5S meters are to be replaced in 2005 because two large groups of meters that were sample tested in 2004 failed to meet compliance criteria.
A further group of 941 Type D5S meters is expected to fail compliance sampling testing and require replacement in 2006. This group was tested in 2004 and qualified for only the minimal 2-year extension. Considering the recent history of failure of Type D5S meters, it was deemed prudent to include the cost of replacing this group in the 2006 budget.

Another group of meters due for re-certification in 2006 is also expected to require replacement. A preliminary test of a group of 1,803 Type M1S meters was performed in 2004 because of a high incidence of stopped meters. Based on the preliminary test results, this group is not expected to pass compliance sample testing, and the cost of replacement has been included in the 2006 capital budget.

There are a significant number of older meters in service that were purchased in the late 1950s and early 1960s. As noted above, Newfoundland Power evaluates the physical condition of meters in its compliance samples, and in 2004 began replacing an increased number of meters that have deteriorated to the point where they are difficult to identify or read. Beginning in 2004, replacements of this nature are classified by Newfoundland Power as GROs, and are included in the line item "Physical Condition" in Table 1.

The "Other Meter Types" in Table 1 consist mainly of older meters that were refurbished and resealed 12 years prior to the replacement date shown in the table. These meters are made up of several different model types and vintages, are not currently eligible for compliance testing, and therefore must be replaced.