**EB-2011-0128**

**IN THE MATTER OF** the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, (Schedule B);

**AND IN THE MATTER OF** an application by PowerStream Inc. for an order or orders approving or fixing just and reasonable distribution rates related to Smart Meter deployment, to be effective November 1, 2011.

**PowerStream Inc. ("PowerStream")**
**Responses to Board Staff Interrogatories**

**Filed September 9, 2011**

**1) Ref. Application pp. 13, 22 and 35 – Smart Meter Costs**

On page 13, PowerStream estimates that it will spend $500,000 on replacement and repair expenses to customer equipment to resolve technical issues and allow installation of a smart meter on customer premises that pose technical problems. PowerStream estimates that $145,000 (pg. 22) and $355,000 (pg. 35) will be required in the North and South rate zones, respectively.

a) Could the applicant describe what methodology was used to allocate the $500,000 in estimated costs between the two rate zones?

b) Please confirm that the $500,000 in estimated costs is based on the number of affected meters. If not, please provide the basis for these estimated costs.

c) Please provide an estimate of the total number of smart meter installations that will require these types of expenses in each rate zone?

d) Please provide a detailed breakdown of the types of expenses forecasted in the $500,000 amount.

**Response:**

a) PowerStream's metering department has identified the number of meter installations in each rate zone, requiring remedial work to complete. PowerStream obtained quotes from several vendors for the electrical and structural work to accommodate the installation of a smart meter for the subject installations. Costs were estimated based on a typical remediation and the number of meters as shown in Table Staff 1-1 below:

**Table Staff 1-1: Problem Installations by Rate Zone**

| Rate Zone | # of Meters | Average Cost | Total Cost |
|---|---|---|---|
| North | 65 | $ 2,223 | $144,495 |
| South | 160 | $ 2,223 | $355,680 |
| Total | 225 | | $500,175 |

b) PowerStream confirms that the estimated costs are based on the number of affected meters, as described in part (a) above.

c) See part (a) above.

d) PowerStream's metering department has identified the types of costs involved in a typical remediation to allow the installation of a smart meter and estimated the costs as shown in Table Staff 1-2 below:

**Table Staff 1-2: Remediation Cost Estimate**

| **Description** | **Cost** |
|---|---|
| Site Customer Visit, Meeting & Scheduling | $ 85 |
| Cost of relocating meter base, cost of relocating service, new service entrance, cost of service replacement/upgrade. | $ 1,780 |
| Service disconnect/reconnect to facilitate meter replacement | $ 78 |
| ESA inspection costs | $ 80 |
| Cladding removal & repairs | $ 200 |
| **Total** | **$ 2,223** |

## 2) Ref. Application pg. 18 – Smart Meter Costs

On page 18, PowerStream states that it has accrued $200,000 in programming costs for its billing systems to meet new billing requirements from Measurement Canada and the Ministry of Energy for register reads on bills and changes in how line losses and billing quantities are presented on the bill.

a) Please provide details regarding the new billing requirements and the ensuing changes to its billing system, as a result of those requirements.

b) Please confirm that the stated $200,000 in costs were exclusively for changes to the billing system required for the smart meter roll out.

c) Will the changes to the billing system impact all customers with smart meters? If so, please explain why the costs have been allocated between the two rate zones based on total number of installed smart meters as opposed to total number of customers mandated to receive smart meters. Additionally, please provide an allocation of costs based on the number of customers mandated to receive smart meters.

**Response:**

a) Measurement Canada sent a notice to all electrical utilities mandating that the start and end meter reading are to be shown on all bills effective January 1, 2012. The MDM/R software was never set up to include meter readings, only Billed Quantity Responses and the breakdown of the consumption for each of the on-peak, mid-peak and off-peak periods.

   This new requirement resulted in the formation of the "Cumulative Register Reading Working Group" by the IESO, a new Technical Interface Document (3.0) and development of a new version of the MDM/R software (Release 7.2).

   PowerStream's CIS software has to be updated to conform to the new MDM/R Technical Interface Document (3.0), to incorporate the new requirements. Billing processes need to be updated to process these new attributes, perform validation and print the readings on the bills. This information has to be incorporated on inquiry screens for customer service representatives assisting customers with billing inquiries. Control files need to be updated for customers with smart meters on time of use billing. The files relate to other processes such as manual billing; meter changes; and service removals.

b) PowerStream confirms that the costs are exclusively for changes to the billing system required for time-of-use billing for customers with smart meters.

c) The changes to the billing system affect all customers with smart meters on time of use billing. This cost was allocated between the two rate zones based on installed meters. As smart meter installation is virtually complete, the number of installed meters and the number of mandated customers are very similar. Table Staff 2-1 shows allocation by mandated customers:

**Table Staff 2-1: Allocation by Mandated Customers**

| | Mandated Customers | % of total | Cost Allocated | Rounded |
|---|---|---|---|---|
| North | 70,511 | 22.5% | $ 45,014 | $ 45,000 |
| South | 242,774 | 77.5% | $ 154,986 | $155,000 |
| Total | 313,285 | 100.0% | $ 200,000 | $200,000 |

As the table above shows, the amounts allocated based on mandated customers ("Cost Allocated") when rounded to hundreds ("Rounded") match the amounts used in the Application based on the number of meters installed to April 30, 2011.

### 3) Ref. Application pp. 23 and 37 – Stranded Meter Costs

On pages 23 and 57, PowerStream states that it is not seeking disposition of its stranded meter costs in this application. PowerStream states that it continues to recover these costs by including the net book value of stranded meters in its rate base for rate making purposes. PowerStream states that it will consider requesting disposition of the stranded meter amount at its next rebasing application.

a) Please confirm PowerStream's intention to dispose of its stranded meters in its next rebasing application as per the approach established in Chapter 2 of the Filing Requirements for Transmission and Distribution Applications issued, June 22, 2011.

**Response:**

a) PowerStream confirms that it intends to dispose of its stranded meters in its next cost of service rate application, as per updated Chapter 2 of the Filing Requirements for Transmission and Distribution Applications, issued June 22, 2011, subject to any further guidance from the Board.

**4) Ref. Application pg. 19 – Smart Meter Costs**

On Table 2, page 19, PowerStream reports actual "other capital costs" exceeding estimated amounts by $555,309. PowerStream states that other capital comprises of the components of the advanced metering infrastructure ("AMI") as well as professional and consulting fees for contract negotiation and program management. PowerStream states that the estimated amounts did not include any allowance for a portion of the shared costs incurred or to be incurred in the South rate zone.

a) Please provide a detailed breakdown of the other capital costs incurred in the North rate zone.

b) What is the nature of the costs that are shared between the North and South rate zone?

c) Please provide details of the shared costs between the two rate zones along with details on how costs were attributed.

d) In the summary above, please summarize to what extent the shared costs were recovered in the prior smart meter cost recovery application (EB-2010-0209).

e) Please confirm that the amounts reported in Table 2 do not include any forecasted shared costs that have yet to be incurred.

**Response:**

a) Table Staff 4-1 summarizes other capital costs for the North rate zone:

**Table Staff 4-1: Other Capital Cost Details**

| Category | Amount |
|---|---|
| Collectors (Radio towers) | $799,429 |
| Professional Fees | $174,931 |
| Program Management | $101,023 |
| Integration | $83,047 |
| AMI computer and software | $52,458 |
| Other AMI Capital | $70,957 |
| Workforce automation | $29,463 |
| TOTAL | $1,311,309 |

b) There are a number of capital costs incurred that benefit both rate zones where the costs cannot be specifically identified with one rate zone or the other. The AMI computers process data for both rate zones. Professional and consulting fees related to the selection, contracts and deployment of smart meters and the related AMI system benefited both rate zones, as the same system has been installed in both areas. In part (c) below, Table Staff 4-2 provides further details of the shared costs.

c) The shared costs were apportioned based on the total number of smart meters to be installed in each service territory; shared costs were assigned 77.7% to the South and 22.3% to the North. Allocation on the actual installed meters to April 30, 2011 results in the same ratio. PowerStream chose this method as best representing the benefit received by each rate zone. Table Staff 4-2 provides details on the shared capital costs.

**Table Staff 4-2: Shared Cost Details**

| Description | Total | North Rate Zone Share | South Rate Zone Share | Board Approved Recoveries | South Residual for Recovery |
|---|---|---|---|---|---|
| Workforce automation | $ 132,121 | $ 29,463 | $ 102,658 | $ - | $ 102,658 |
| AMI computers | $ 235,239 | $ 52,458 | $ 182,781 | $ 208,462 | $ (25,681) |
| Interface to CIS | $ 1,786,693 | $ 398,433 | $ 1,388,260 | $ 753,707 | $ 634,553 |
| Professional fees | $ 784,443 | $ 174,931 | $ 609,512 | $ 615,088 | $ (5,576) |
| Integration | $ 372,409 | $ 83,047 | $ 289,362 | $ 185,385 | $ 103,977 |
| Program Management | $ 453,020 | $ 101,023 | $ 351,997 | $ 233,966 | $ 118,031 |
| Other AMI Capital | $ 318,194 | $ 70,957 | $ 247,237 | $ 259,203 | $ (11,966) |
| **Total Shared Costs** | **$ 4,082,119** | **$ 910,312** | **$ 3,171,807** | **$ 2,255,811** | **$ 915,996** |
| Radio Towers | $ 1,538,842 | $ 799,429 | $ 739,413 | $ 650,810 | $ 88,603 |
| **Total Other Capital** | **$ 5,620,961** | **$ 1,709,741** | **$ 3,911,220** | **$ 2,906,621** | **$ 1,004,599** |
| **Per application:** | | **Table 2** | | | **Table 14** |
| Billing systems | | $ 398,433 | | | $ 634,553 |
| Other capital | | $ 1,311,309 | | | $ 370,045 |
| **Total** | | **$ 1,709,742** | | | **$ 1,004,598** |

The total shared costs were apportioned between the rate zones. For the South rate zone, all previous approved amounts were subtracted to arrive at the net amount remaining to be recovered by this Application. In some cases this resulted in a negative amount since the earlier Applications did not take into account the sharing of the expense with the North rate zone. No amounts have been requested for recovery for the North rate zone before this Application.

d) Amounts totaling $2,255,811 of shared costs and $650,810 for radio towers have been approved for the South rate zone in EB-2010-0209 and EB-2008-0244. These costs, shown in the "Board Approved Recoveries" column of Table Staff 4-2, above, have been removed from account 1555 and excluded from the costs contained in this Application.

e) Table 2 contains an accrual of $45,000 for billing changes related to new Measurement Canada requirements for register reads on time of use bills. This work was not started as of April 30, 2011. See Staff IR#2 above for further details.

**5) Ref. Application pp. 22 and 35 – Smart Meter Costs**

On Table 4, PowerStream summarizes the calculation of its projected OM&A expenses for 2011 in the North rate zone. In that table, PowerStream projects maintenance costs of $145,000 in the "Projected 2011 Total" column. When prorating the costs for the period starting January 1, 2011 through October 31, 2011, the OM&A maintenance costs are projected at $10,000 in the "Adjusted 2011" column of the table.

a) Please explain how PowerStream determined the values in the "Adjusted 2011" column from the values in the "Projected 2011 Total" column of Table 4.

b) Please confirm that the same methodology was used in Table 16 for the South rate zone.

**Response:**

a) The actual and projected OM&A costs for 2011 are suitable for calculating the Smart Meter Disposition rate rider.

   The 2011 expenses contain some specific items that are not likely to re-occur in 2012 and beyond. An example is the maintenance expense related to customer owned equipment to allow installation of a smart meter. Similarly there are significant customer communication costs at the time the smart meter is installed and when the customer is switched to time of use billing. These costs will be significantly less in 2012 and beyond.

   PowerStream concluded that the projected 2011 OM&A costs might not be appropriate for purposes of calculating the Smart Meter Incremental Revenue Requirement. PowerStream adjusted the 2011 OM&A costs to better reflect the expected costs on a go forward basis.

   The "Adjusted "2011" OM&A costs were derived using the Projected 2011 OM&A costs then making the following adjustments:

   - AMI costs were adjusted to reflect a full year of meter reading savings
   - Maintenance cost was adjusted to remove the $145,000 in 2011, for expenses related to customer owned equipment to allow smart meter installation, and replaced with an estimated $10,000 for maintenance of the 69,000 installed meters.
   - Customer communication costs, other than call centre costs related to smart meters and time of use billing, were removed.

b) PowerStream confirms that the same methodology was used in Table 16 for the South rate zone to derive the "Adjusted 2011" OM&A costs. The "Adjusted "2011" OM&A costs were derived using the Projected 2011 OM&A costs then making the following adjustments:

   - AMI costs were adjusted to reflect a full year of meter reading savings
   - Maintenance cost was adjusted to remove the $355,000 in 2011 for the remedial expenses related to customer owned equipment to allow smart meter installation.

This leaves an amount of $26,599, equal to the projected 2011 expense for meter maintenance excluding the special remedial work, which is net of $13,400 already in approved rates.

- Customer communication costs, other than call centre costs related to smart meters and time of use billing, were removed.
- Meter maintenance, customer communications and change management costs were reduced by the amounts already approved in rates. This resulted in negative amounts for customer communications and change management as the projected total 2012 costs are less than the amounts already approved in rates.

**6) Ref. Application pg. 33 – Smart Meter Costs**

On Table 14, PowerStream compares the actual 2010 capital costs incurred with estimated capital costs filed as part of PowerStream's 2010 IRM rate application (EB-2010-0110). PowerStream shows underestimates of $398,553 for Customer Billing System costs and $217,745 for other capital costs.

a) On page 32, PowerStream states that it has incurred $200,000 in costs for changes to its customer billing system, of which $155,000 has been allocated to the South rate zone. To what does PowerStream attribute the remaining $243,553 in costs incurred in excess of their 2010 estimated costs?

b) Please provide further details related to the $217,745 in other capital costs incurred in excess of their estimated amounts for 2010, shown in the 4th row of Table 14.

**Response:**

a) The estimated amount used in the 2010 smart meter adder model, filed in the fall of 2009, was based on the 2009 budget amount and did not reflect the actual level of programming effort required to meet the developing and changing requirements.

   PowerStream was one of the early utilities to work with the IESO and the first to migrate large numbers of customers to the MDM/R. PowerStream has devoted a great deal of time and effort in developing software to interface with the MDM/R, working with IESO on the MDM/R system, modifying PowerStream's software to meet the changing standards and testing.

   As discussed in the response to IR#2 above, the MDM/R Technical Interface Document continues to be revised; the latest version is 3.0. Similarly the MDM/R software also continues to be revised; the latest release is 7.2. Changes in the Technical Interface Document and the MDM/R software result in the need to update PowerStream's billing software and processes, which are then subject to rigourous testing.

b) Table Staff 6-1 compares the actual other capital costs with the amount estimated in the 2010 Smart Meter adder model prepared in 2009 as part of PowerStream South's 2010 IRM application.

**Table Staff 6-1: Actual vs. Estimated Other Capital Costs**

| Description | Actual costs to April 30/2011 | 2010 Estimate | Variance |
|---|---|---|---|
| Collectors (Radio towers) | $ 88,603 | $ 152,300 | $ 63,697 |
| Professional Fees | $ (5,576) | $ - | $ 5,576 |
| Program Management | $ 118,031 | $ - | $ (118,031) |
| Integration | $ 103,977 | $ - | $ (103,977) |
| Other AMI Capital | $ (11,966) | $ - | $ 11,966 |
| Workforce automation | $ 102,658 | $ - | $ (102,658) |
| AMI computer | $ (25,681) | $ - | $ 25,681 |
| **Total** | **$ 370,045** | **$ 152,300** | **$ (217,745)** |

As a general matter, the estimated amounts used in the 2010 smart meter adder model, filed in the fall of 2009, did not anticipate the actual level of support that would be required to complete the smart meter capital program. The comments below relate to the variances set out in Table Staff 6-1, above.

Collectors (radio towers) have a favourable variance due to favourable actual costs and allocation of part of the cost of a tower to the North rate zone. This tower is used by the metering department to test and service meters for both rate zones.

Professional fees has a favourable variance as actual spending was more than offset by the allocation of a portion of the total spending to date to the North rate zone to reflect the benefits of the procurement contracts on the North program. Allocation of shared costs is discussed in the response to Board Staff IR#4 above.

Program management had an unfavourable spending variance of $118,031. This was mainly due to efforts spent on finding an alternative source of approved 3-phase smart meters. In 2009 there was a single vendor with an approved 3-phase meter. PowerStream actively worked with other meter vendors to have another 3-phase smart meter approved by Measurement Canada available. PowerStream was successful in sourcing approved 3-phase meters from General Electric paired with a radio module from Sensus, the primary vendor of PowerStream's AMI system. PowerStream was able to purchase these meters at a significantly lower cost than what was previously available. This activity did result in somewhat higher program management costs but resulted in savings of approximately $802,000 on the cost of 3-phase meters, based on the average installed cost per standard 3-phase meter of $565 for this Application compared to the $628 approved in PowerStream's 2010 Smart Meter Cost Recovery application (EB-2010-0209).

Integration spending had an unfavourable variance of $103,977. Consultants were used to help with interpreting requirements, identifying and redesigning business processes affected by the smart meter program. This work turned out to be considerably involved with the need to design or redesign 138 business processes.

Other AMI capital has a favourable variance as actual spending was more than offset by the allocation of a portion of the total spending to date on these shared costs to the North rate zone.

Workforce automation spending was due to a change in the contractor used for the high volume residential installations. The new contract pricing was more favourable but required PowerStream to supply a workforce automation system. This provided net savings and it also allowed PowerStream to use the workforce automation system for all smart meter installations including those by its own staff and other contractors.

AMI computer has a favourable variance as a portion of previous spending on these shared costs was allocated to the North rate zone.

After allocation of a portion of the actual costs to the North rate zone and subtraction of approved amounts, some categories result in negative amounts. All of the shared costs were recorded in accounts associated with the South rate zone. Entries to allocate a portion of shared costs to the North rate zone were only made toward the end of 2010. Previously approved amounts did not take into account that some costs would be shared with the North rate zone.

## 7) Ref: Application pp. 11 – MDM/R Costs

On page 11, PowerStream confirms that no amounts have been included in the actual or projected costs for charges for use of the Provincial Meter Data Management and Repository ("MDM/R"). The applicant mentions that it understands such costs will be deferred for future recovery. PowerStream states that it understands this to mean that account 1556 will remain open and any costs related to the Provincial MDM/R should be tracked in that account for future disposition.

a) Please confirm whether PowerStream has received any direction from the Board, or please identify the Board authority, that identifies account 1556 to be the appropriate account for tracking MDM/R costs for future recovery.

**Response:**

a) PowerStream has not received any direction from the Board regarding the appropriate account to track MDM/R costs for future recovery.

   In the Board's Decision on PowerStream's 2010 Smart Meter Cost Recovery Application (EB-2010-0209), the Board stated:

   > *In terms of tracking the MDM/R costs it is open to the Applicant to do so should these costs arise in advance of PowerStream's next rate application, but the Board will not establish a formal deferral account at this time.*

   The purpose of the statement by PowerStream referred to by Board Staff was to highlight the issue that a deferral account will be required if and when MDM/R services are billed to utilities. PowerStream suggests that a sub-account of account 1556 would be preferable to creating a new deferral account.

**8) Ref. Application pp. 17 and 30 – Smart Meter Capital Costs**

In Tables 1 and 12, PowerStream summarizes the smart meter capital costs incurred in its North and South rate zones, respectively.

a) Please account for the difference in average capital costs per meter between the North and South rate zones.

b) Please explain the distinction between capital costs and installed capital costs, as reported in Tables 1 and 12 and provide further explanation as to why installed capital costs are lower than capital costs.

**Response:**

a) Table Staff 8-1 shows the average capital cost per meter in each rate zone:

**Table Staff 8-1: Average Capital Cost per Meter by Rate Zone**

| **North** | **Residential** | **GS<50kW** | **Total** |
|---|---|---|---|
| Installed Cost per meter | $ 105.88 | $ 489.60 | $ 134.60 |
| Other capital costs per meter | $ 24.63 | $ 24.64 | $ 24.64 |
| **Total Capital costs per meter** | **$ 130.51** | **$ 514.24** | **$ 159.24** |
| **South** | **Residential** | **GS<50kW** | **Total** |
| Installed Cost per meter | $ 264.80 | $ 524.14 | $ 470.78 |
| Other capital costs per meter | $ 46.24 | $ 46.24 | $ 46.24 |
| **Total Capital costs per meter** | **$ 311.04** | **$ 570.38** | **$ 517.02** |

The difference in average cost per meter is driven mainly by the installed cost per meter excluding other capital costs. This difference is explained below. The higher other capital cost per meter for the South is due to averaging of costs, related to all installed meters, over the smaller number of installed meters included in this Application, relative to the North.

There are three types of meters installed for Residential customers:

- Single phase “standard”
- Single phase – transformer rated
- Two-phase Network meter

The cost of an installed transformer rated and network meter are similar and the cost is approximately 2.7 times that of an installed standard single phase meter.

Most Residential customers received a standard single phase meter. Some Residential customers have a 400 amp service and require the transformer rated meter. There are a number of multi-unit residential buildings that use two phases of the three phase electrical supply where it was necessary to install two phase network meters.

There are several types of meters installed for GS<50 kW customers:

- Single phase (mainly standard, occasionally Network or transformer rated)
- 3-phase "standard" (120 to 480 volts)
- 3-phase 600 volts

The cost of an installed standard 3-phase meter is approximately 2.4 times the cost of an installed standard single phase meter. The cost of an installed 3-phase 600 volt meter is approximately 1.8 times the cost of an installed standard 3-phase meter.

Most GS<50 kW customers receive the 3-phase standard meter. However many customers received single phase and a smaller group received 3-phase 600 volt meters.

The average cost per meter differs significantly between the North and South rate zones due to the mix of meter types installed. This is illustrated in Table Staff 8-2.

**Table Staff 8-2: Average Installed Cost per Meter**

| **Rate Zone:** | **North** | | **South** | |
|---|---|---|---|---|
| **Class/Type** | **Quantity** | **Installed Cost** | **Quantity** | **Installed Cost** |
| **Residential** | | | | |
| Standard | 62,621 | $6,363,107 | 255 | $ 25,833 |
| 400 Amps | 518 | $ 138,533 | 1,020 | $ 271,570 |
| Network | 1,060 | $ 295,486 | 3,195 | $ 886,261 |
| **Total** | **64,199** | **$6,797,126** | **4,470** | **$ 1,183,664** |
| **Average cost** | | **$ 105.88** | | **$ 264.80** |
| | | | | |
| **GS<50 kW** | | | | |
| Single Phase | 1,429 | $ 309,812 | 3,081 | $ 624,326 |
| 3-phase 120-480V | 3,476 | $1,964,436 | 12,936 | $ 7,267,208 |
| 3-phase 600 Volt | 289 | $ 268,742 | 1,238 | $ 1,152,439 |
| **Total** | **5,194** | **$2,542,990** | **17,255** | **$ 9,043,973** |
| **Average cost** | | **$ 489.60** | | **$ 524.14** |
| | | | | |
| **TOTAL** | **69,393** | **$9,340,116** | **21,725** | **$10,227,637** |
| **Average cost** | | **$ 134.60** | | **$ 470.78** |

This difference in mix is due mainly to differences in what part of the smart meter implementation program ("SMIP") is included in this Application for each rate zone. This Application contains costs for the entire SMIP for the North rate zone but only a portion of costs of the SMIP for the South rate zone.

Most of the SMIP costs for Residential customers in the South have been reviewed and approved in previous rate applications. For the South rate zone, this Application contains only smart meters installed between January 1, 2010 and April 30, 2011, which consist mainly of more expensive GS<50 kW 3-phase meter installations and the less typical and more expensive Residential meters.

The North's lower average installed cost per Residential meter, compared to the South, is due to the averaging of a large number of standard (less expensive) single phase smart meters with a small number of the less common (more expensive) meters. In the South the high average cost is driven by a larger proportion of the less common (more expensive) meters relative to a small number of standard meters installed between January 1, 2010 and April 30, 2011.

The North's lower average installed cost per GS<50 kW meter, compared to the South, is due to a higher proportion of GS<50 kW customers with single phase service where the less expensive single phase meters were installed.

b) Table 1 and Table 12 show "Capital Costs" and "Installed Meter Capital Costs".

"Capital Costs" include the cost of installed meters; other Advanced Metering Infrastructure ("AMI") capital; and other AMI capital costs.

"Installed Meter Capital Costs" consists of the cost of the meter, rings, seals and installation.

"Other AMI capital" includes regional collectors and the advanced metering control computer and software.

"Other AMI capital costs" includes AMI interface to CIS; CIS programming related to smart meters and time of use billing; professional fees and program management related to obtaining and evaluating price quotes; negotiation and contracts; and planning and deployment of smart meter infrastructure.

"Capital Costs" are greater than "Installed Meter Capital Costs" due to the inclusion of other AMI capital and other AMI capital costs in addition to the installed meter cost.

**9) Ref. Application pp. 12, 13, 19 and 33 – Smart Meter Costs**

On page 12, PowerStream states that due to delays in the availability of 3-phase smart meters, it was unable to complete all of the planned installations for the GS<50 kW customer class in 2010. PowerStream later states (on page 13) that the capital costs of the remaining meters to be installed after April 30, 2011 will be treated as regular capital additions and included in rate base in its next cost of service rate application.

On Tables 2 and 14 (pages 19 and 33), PowerStream compares actual capital costs incurred with estimated costs for 2010. In both cases, the estimates for the installed meter costs were significantly higher than the actuals. PowerStream states that the lower actual costs are the result of fewer 3-phase meters being installed than forecasted.

a) Please provide up-to-date 2011 actual data from April 30, 2011 for each of the following in each rate zone:

   i. Total number of GS<50 kW meters installed.
   ii. Number of 3-phase GS<50kW meters installed.
   iii. Total GS<50 kW capital costs.
   iv. Installed 3-phase GS<50 kW meter capital costs.
   v. OM&A costs for installed GS<50 kW smart meters.
   vi. OM&A costs for installed 3-phase GS<50 kW smart meters.

b) Please confirm PowerStream is not intending to recover the costs for the remaining 3-phase meters requiring installation prior to its next rebasing application at which time those assets will be treated as regular capital additions to rate base pending a further prudence review.

**Response:**

a) Items i through vi are addressed below, but PowerStream would first like to address the preamble to these questions. The estimates used in the 2010 Smart Meter adder calculation, prepared in 2009, were based on all GS<50 kW customers receiving 3-phase meters. In fact, approximately 15% of GS<50 kW customers have single phase service and were able to receive a lower cost single phase meter. This was one factor in the lower actual costs. The other factor was lower costs for the 3-phase meters installed.

   PowerStream notes that in preparing the estimate used in the 2010 smart meter adder, it was anticipated that all smart meter installations would be completed by December 31, 2010. The actual cost includes the costs up to April 30, 2011 when installation was substantially complete. The information in the following responses to part (a) of this interrogatory represents an update of actual data to July 31, 2011.

   i.) Table Staff 9-1 summarizes the number of GS<50 kW smart meters installed as of July 31, 2011.

**Table Staff 9-1: GS<50 kW Meter Installations at July 31, 2011**

| | July 31, 2011 | | April 30, 2011 | | Change | |
|---|---|---|---|---|---|---|
| **Meter Type** | **North** | **South** | **North** | **South** | **North** | **South** |
| Single Phase meters | 1,493 | 3,164 | 1,429 | 3,081 | 64 | 83 |
| 3-Phase meters | 3,827 | 17,413 | 3,765 | 16,787 | 62 | 626 |
| **Total GS<50 kW meters** | **5,320** | **20,577** | **5,194** | **19,868** | **126** | **709** |

ii.) Please see the response to part (i) above.

iii.) Table Staff 9-2 shows the total GS<50 kW installed meter capital costs as at July 31, 2011.

**Table Staff 9-2: GS<50 kW Installed Meter Capital Cost at July 31, 2011**

| | North | South | Total |
|---|---|---|---|
| Approved in 2010 application | $ - | $ 1,783,540 | $ 1,783,540 |
| 2011 application (April 30, 2011) | $2,542,989 | $ 9,043,973 | $ 11,586,962 |
| Installed May 1, 2011 to July 31, 2011 | $ 47,019 | $ 516,433 | $ 563,452 |
| **Total** | **$2,590,008** | **$11,343,946** | **$ 13,933,954** |

iv.) Table Staff 9-3 shows the GS<50 kW installed 3-phase meter capital costs as at July 31, 2011.

**Table Staff 9-3: GS<50 kW Installed 3-Phase Meter Capital Cost at July 31, 2011**

| | North | South | Total |
|---|---|---|---|
| Approved in 2010 application | $ - | $ 1,783,540 | $ 1,783,540 |
| 2011 application (April 30, 2011) | $2,310,875 | $ 8,609,976 | $ 10,920,851 |
| May 1/11 to Jul 31/11 | $ 32,661 | $ 499,234 | $ 531,895 |
| **Total** | **$2,343,536** | **$10,892,750** | **$ 13,236,286** |

v.) Table Staff 9-4 shows the 2011 OM&A costs updated to July 31, 2011 for each rate zone.

**Table Staff 9-4: 2011 OM&A Costs to July 31, 2011**

| **North Rate Zone** | **July 31, 2011** | **April 30, 2011** | **Change** |
|---|---|---|---|
| AMI System Operation | $ 32,180 | $ 29,151 | $ 3,029 |
| Maintenance | $ 3,377 | $ - | $ 3,377 |
| Customer Communication | $ 147,469 | $ 112,028 | $ 35,441 |
| Change management | $ 11,662 | $ 7,168 | $ 4,494 |
| **North Total** | **$ 194,688** | **$ 148,347** | **$ 46,341** |
| **South Rate Zone** | **July 31, 2011** | **April 30, 2011** | **Change** |
| AMI System Operation | $ 23,370 | $ 17,913 | $ 5,457 |
| Maintenance | $ 3,951 | $ 8,173 | $ (4,222) |
| Customer Communication | $ 154,175 | $ 152,382 | $ 1,793 |
| Change management | $ (24,701) | $ (12,358) | $ (12,343) |
| **South Total** | **$ 156,795** | **$ 166,110** | **$ (9,315)** |

PowerStream does not track incremental smart meter OM&A costs separately for GS<50 kW meters. OM&A expenses vary with the number of meters and/or the number of customers with no discernable difference between different types of meters or different classes of customers. For the purpose of responding to this interrogatory, PowerStream has allocated the OM&A costs between rate classes based on the average number of installed smart meters for the group relative to the average total installed smart meters during the period. This is shown in Table Staff 9-5.

Table Staff 9-5: 2011 OM&A Costs for Installed GS<50 kW Meters

| | North | South |
|---|---|---|
| 2011 OM&A costs to July 31, 2011 | $ 194,688 | $ 156,795 |
| Average number of installed smart meters | 68,356 | 17,538 |
| Average number of installed GS<50 kW smart meters | 4,338 | 13,011 |
| **OM&A Costs allocated to GS<50 kW** | **$ 12,355** | **$ 116,322** |
| OM&A Costs allocated to Residential | $ 182,333 | $ 40,473 |

vi.) Table Staff 9-6 shows the allocation of 2011 OM&A costs to installed 3-phase meters, similar to the allocation in part (v) above.

Table Staff 9-5: 2011 OM&A Costs for Installed GS<50 kW 3-Phase Meters

| | North | South |
|---|---|---|
| 2011 OM&A costs to July 31, 2011 | $ 194,688 | $ 156,795 |
| Average number of installed smart meters | 68,356 | 17,538 |
| Average number of installed GS<50 3-phase smart meters | 3,110 | 10,521 |
| **OM&A Costs allocated to GS<50 kW** | **$ 8,858** | **$ 94,061** |
| OM&A Costs allocated to Residential | $ 185,830 | $ 62,734 |

See the response to part (v) above for discussion of the allocation process.

b) PowerStream confirms that it is not intending to recover the costs for the remaining 3-phase meters requiring installation prior to its next rebasing application. At that time those assets will be treated as regular capital additions to rate base pending a further prudence review.

**10) Ref. Application pp. 12, 17 and 30 – Smart Meter Capital Costs**

In Tables 1 and 12, PowerStream summarizes the capital costs for GS<50 kW customer class meters installed in both the North and South rate zones, respectively. PowerStream states (page 12) that reported capital costs do include some installed 3-phase meters.

a) For GS<50 kW class meters installed up to April 30, 2011, please provide the following in each rate zone:

i. Total number of 3-phase meters installed.
ii. Capital costs for 3-phase meters installed.
iii. OM&A costs for 3-phase meters installed.

**Response:**

a) Single phase meters are installed on some GS<50 kW customers. Most GS<50 KW customers have 3-phase service and require 3-phase meters.

i.) Table Staff 10-1 shows the types and number of meters installed for the GS<50 kW class:

**Table Staff 10-1: GS<50 kW Meters Installed by Type**

| Type | North | South | Total |
|---|---|---|---|
| Single Phase meters | 1,429 | 3,081 | 4,510 |
| 3-Phase meters | | | |
| 120 to 480 volts | 3,476 | 12,936 | 16,412 |
| 600 volts | 289 | 1,238 | 1,527 |
| **Total 3-phase meters** | **3,765** | **14,174** | **17,939** |
| Total GS<50 kW meters | 5,194 | 17,255 | 22,449 |

The table represents the installed meters included in this application. It does not include the 2,613 3-phase meters installed in 2009 that were included in PowerStream's 2010 Smart Meter Cost Recovery Application (EB-2010-0209).

ii.) Table Staff 10-2 shows the capital costs of the 3-phase meters installed:

**Table Staff 10-2: Capital Cost Installed 3-Phase Meters**

| | North | South | Total |
|---|---|---|---|
| Approved in 2010 application | $ - | $ 1,783,540 | $ 1,783,540 |
| 2011 application (April 30, 2011) | $2,310,875 | $ 8,609,976 | $ 10,920,851 |
| May 1/11 to Jul 31/11 | $ 32,661 | $ 499,234 | $ 531,895 |
| **Total** | **$2,343,536** | **$10,892,750** | **$ 13,236,286** |

iii.) Please see PowerStream's response to Board Staff IR#9(a)(v), above.

**11) Ref. Application pp. 19 and 32 -- Minimum functionality**

On pages 19 and 32, PowerStream states that it has not incurred any costs for functionality beyond the minimum functionality adopted in O.Reg. 425/06. In the Board's combined proceeding in relation to smart meter costs (EB-2007-0063), minimum functionality was defined as any costs within the "Advanced Metering Infrastructure (AMI)" box shown in Appendix D of the decision. Costs such as integration with the MDM/R are not within the scope of minimum functionality, as defined by Appendix D. On page 18, PowerStream states that it seeks recovery for programming costs to meet the requirements of the MDM/R.

a) Please provide an updated summary of costs that separates minimum functionality from costs incurred beyond minimum functionality, as defined by the combined proceeding (EB-2007-0063).

**Response:**

a) In the 2007 Combined Proceeding (EB-2007-0063) the Board added a secondary meaning to the definition of "minimum functionality", restricting it to costs related to the AMI only as shown in the diagram in Appendix D of the decision.

The diagram in Appendix D of the combined proceeding clearly shows that a fully implemented Smart Metering System involves more than the AMI. PowerStream submits that this secondary meaning of minimum functionality was a temporary one specific to that proceeding and the state of smart meter implementation in Ontario at the time.

PowerStream notes the following taken from the Ministry of Energy and Infrastructure website (http://www.mei.gov.on.ca/en/energy/conservation/smartmeters/?page=powersmarter_technical-information)

***Smart Meters: Cost Recovery***

- *There are two new regulations amending O. Reg. 426/06 (Smart Meters: Cost Recovery) made under the* Ontario Energy Board Act, 1998*.*
- *The amendments make it clear that distributors can recover costs, subject to Ontario Energy Board approval, for Smart Metering Entity enrolment and connection requirements – in essence plugging into the MDM/R.*
- *Secondly the amendments provide clarity around recoverability of costs associated with conventional meters that are replaced as a result of the smart metering initiative.*
- *Finally, the amendments clarify that the first five distributors integrated with the Smart Metering Entity's MDM/R system will be able to recover costs, subject to Ontario Energy Board approval, relating to supporting the IESO's finalization of the design and requirements of the MDM/R.*

PowerStream notes that the Board's Smart Meter Rate Calculation models were revised subsequent to the 2007 model and expanded to include costs outside of the AMI box. The updated model includes the capital cost category "1.5.2 AMI interface to CIS". As shown in the Appendix D diagram in the Decision, data flows from the AMI to the MDM/R to the CIS. The programming costs, to modify billing software to accept the billing data sent from the Provincial MDM/R and perform Time-of-use billing, are part of the AMI interface to CIS.

As discussed in response to Staff IR#7, no amounts have been included in the actual or projected costs for charges for use of the Provincial MDM/R.

PowerStream reaffirms its statement that it has not incurred any costs for functionality beyond the minimum functionality adopted in O.Reg. 425/06, as currently defined.