

**DISTRIBUTION AND CUSTOMER SERVICE COSTS**

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## **1 BACKGROUND**

The Distributor's operational context has greatly changed during recent years, and has been characterized, among others, by the following growth elements, over the period of 2001 to 2007:

- The number of subscriptions has increased from 3,557,290 in 2001 to 3,842,870 in 2007, which represents an average annual growth of 1.3%.
- The number of annual connections has almost doubled between 2001 and 2005, going from 28,744 to 56,605. Despite a slowdown in growth in 2005 (50,902 connections), the number will remain high in 2006 and 2007, with growth forecasts of 47,550 and 42,800 connections, respectively.
- The number of kilometers for the system went from 105,352 in 2001 to 109,872 in 2007, an increase of 4,520 kilometers.
- The normalized sales volume reached an average annual growth rate of almost 2.1%.

Much more important than forecast, this increase of HQD's activities, combined with the cost freeze for day-to-day activities since 2003, the new programs offered to customers within the PGEÉ, as well as the big projects which have begun in recent years to modernize HQD's activities (CIS, system automation), exert an upward pressure on the distribution and customer service costs.

It follows that the maintenance activities were limited during this period to a level that was just enough to preserve the short-term service level. In this context, HQD must, as of 2007, begin additional maintenance and vegetation control work in order to ensure long-term service continuity, employee and public security, as

well as the maintenance of operating conditions. The same is true for investments in system asset maintenance, as presented in Exhibit HQD-14, Doc 1. In addition to the structural adjustments that will begin in 2007, there are several other one-time cost elements, which are out of the Distributor's control, and, for which the evolution is unfavourable from a balance sheet perspective (e.g. pension costs, financial parameters, fuel costs). Even though some efficiency gains contribute to limiting the normal growth of the costs of HQD's day-to-day activities to 2% over the period of 2005-2007, they cannot also mitigate the addition of such important structural and one-time cost elements.

The year 2007 is therefore a pivotal year where important decisions must be made in order to avoid deterioration in the quality of service and thus fully assume the Distributor's incumbent responsibilities to its customers with respect to service quality and reliability.

## 2 EVOLUTION OF DISTRIBUTION AND CUSTOMER SERVICE COSTS

Distribution and customer service costs can be broken down as follows:

### DISTRIBUTION AND CUSTOMER SERVICE COSTS (in \$ million) Financial Year Ending December 31

	COÛTS DE DISTRIBUTION & SERVICES À LA CLIENTÈLE (en millions de dollars)		
	Exercices terminés le 31 décembre		
	Année historique	Année de base	Année témoin
	2005	2006	2007
<b>Charges d'exploitation</b>	<b>1 086,5</b>	<b>1 162,6</b>	<b>1 235,8</b>
Charges brutes directes	1 000,9	1 088,9	1 149,4
Masse salariale	698,0	763,4	784,2
Autres charges directes	302,9	323,5	365,2
Charges de services partagés	374,3	380,2	391,0
Coûts capitalisés	-322,8	-341,7	-344,1
Frais corporatifs	34,1	37,2	39,5
<b>Autres charges</b>	<b>648,9</b>	<b>719,9</b>	<b>770,6</b>
Achats de combustible	55,3	66,0	69,1
Amortissement et déclassement	489,0	557,5	603,3
Taxes	104,6	96,4	98,2
<b>Coût du capital</b>	<b>635,0</b>	<b>699,6</b>	<b>754,3</b>
Capitaux empruntés	412,9	453,4	485,0
Capitaux propres	222,1	246,2	269,3
<b>COÛTS DE DISTRIBUTION &amp; SERVICES À LA CLIENTÈLE</b>	<b>2 370,4</b>	<b>2 582,1</b>	<b>2 760,7</b>

#### Translation of Column 1:

#### **Operating Costs**

- Gross Direct Costs
  - Salary Costs
  - Other Direct Charges
- Shared Service Charges

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- Capitalized Costs
- Corporate Charges

**Other Costs**

- Fuel Purchases
- Amortization and Disposal
- Taxes

**Cost of Capital**

- Debt
- Equity

**DISTRIBUTION & CUSTOMER SERVICE COSTS**

Since 2004, distribution and customer service costs have increased by \$390.3 million, an average annual increase of 7.9%.

**2.1 Main variances**

**2.1.1 Operating Costs**

Operating costs increased by \$149.3 million, going from \$1,086.5 million in 2005 to \$1235.8 million in 2007, an average annual increase of 6.6%. This increase is mainly attributable to salary costs (+ \$86.2 million), as well as direct costs (+ \$62.3 million) and result from certain specific elements that, on their own, account for an increase in the operating costs of \$127.3 million over the period of 2005 to 2007 (see Section 3).

If it had not been for these elements, the 2007 operating costs would have been up 2% (\$21.5 million) compared to 2005, an average annual increase of 1%. Considerable efficiency efforts had to be deployed by HQD with the goal of limiting the increase of day-to-day activity costs to 2%. Moreover, Exhibit HQD-3, Doc 1 presents examples of efficiency actions, related to both operating costs and investments, representing gains of approximately \$20 million.

### **2.1.2 Other Costs**

Other charges are up from \$648.9 in 2005 to \$770.6 in 2007, an increase of \$121.7 million. This increase is mainly attributable to the amortization cost that increased by \$114.3 million in the same period. Exhibit HQD-7, Doc 9 explains in detail the reasons for this increase, with the principal reasons being:

- the increase of \$24.5 million in the amortization of overhead and underground distribution lines, resulting, among others, from the increase of investments, related to the increase in demand;
- the increase of \$34.4 in the amortization of the Energy Efficiency Plan (PGEÉ), in combination with increasing investments carried out in different energy efficiency programs;
- the increase of \$35.2 million in the amortization of intangible assets, essentially attributable to the activation of CIS project in January 2007;
- the increase of \$42.6 million in the amortization of deferred costs related to the BT rate.

### **2.1.3 Cost of Capital**

The cost of capital grew from \$635.0 million in 2005 to \$754.3 million in 2007, an increase of \$119.3 million. This increase is explained on the one hand, by the change in rate of return on the rate base (\$39.5 million), and on the other hand, by the increase in the rate base (\$79.8 million) (see HQD-8, Doc 2).

## **2.2 Comparison of the Approved 2006 Data with the Data from the Base Year**

The distribution and customer service costs for the base year are higher than those authorized by the Régie for 2006 by \$37.7 million, as indicated in the table below:

	COÛTS DE DISTRIBUTION & SERVICES À LA CLIENTÈLE (en millions de dollars)	
	2006	
	D-2006-34	Année de base
Charges d'exploitation	1 133,7	1 162,6
Autres charges	718,7	719,9
Coût du capital	691,3	698,9
<b>COÛTS DE DISTRIBUTION &amp; SERVICES À LA CLIENTÈLE</b>	<b>2 543,7</b>	<b>2 581,4</b>

This variance is mainly explained by the following elements:

- an increase in the pension cost (+ \$19.5 million) and fuel costs (+ \$7.9 million)
- an increase in the rate of return on the rate base, partly compensated by a reduction in the average rate base (+ \$8.3 million)

We note that the pension and fuel costs, as well as the rate of return on the rate base result from elements over which HQD has no direct control.

The variance between the distribution and customer service costs approved by the Régie and the actual data will be reflected in HQD's return for 2006. The elements of the increase will also impact on the 2007 costs.

### **3 ANALYSIS OF THE EVOLUTION OF SPECIFIC ELEMENTS**

In the current section, HQD presents specific elements related to the increase in operating costs.

	(en millions de dollars)
	Variation 2005-2007
<b>Coût de retraite</b>	49,0
<b>Activités en cours de réalisation</b>	
<i>Stabilisation post SIC</i>	20,0
<i>Automatisation du réseau</i>	5,0
<i>Alimentation des clients de la région de Schefferville</i>	8,0
<i>HydroSolution</i>	3,0
<b>Performance du réseau</b>	
<i>Contrôle de la végétation</i>	10,0
<i>Maintenance</i>	14,0
<b>Autres</b>	
<i>Campagne Grand public</i>	1,2
<i>Provisions - aléas d'exploitation</i>	17,6
	<b>127,8</b>

### **3.1 Cost Recorded as Constituted Service (Pension Cost)**

Hydro-Québec's pension cost is based on actuarial assessments carried out periodically by an external actuarial consulting firm.

- The portion of the pension cost attributed to HQD increased by \$30.3 million, going from \$47.8 million in 2005 to \$78.1 million in 2007 (see HQD-7, Doc 4 and HQD-7, Doc 7).
- The Distributor's shared services costs attributed to the portion of the pension cost attributed to the internal suppliers went from \$0 million in 2005 to \$16.2 million in 2007 (HQD-7, Doc 6).
- The Distributor's corporate charges attributable to the portion of the pension cost attributed to the corporate units went from \$0 million in 2005 to \$2.5 million in 2007.

As such, the total impact for HQD of the changes in the pension cost over the period of 2005-2007 amounts to \$49.0 million, a third of the total increase in the operating costs.

## **3.2 Activities Being Carried Out**

### **3.2.1 Post-Customer Information System (CIS) Stabilization**

The Distributor plans to complete the technical implementation of the CIS project, with success, among others, at the level of performance and stability of the technical solution, and in compliance with the budget presented to the Régie in the R-3491-2002 filing.

However, in the context of such important changes, HQD must recognize that the integration of the project in the day-to-day management of its activities is much longer and includes difficulties that are greater than initially foreseen.

Following the delivery 2 (L2) (implementation of the CIS with commercial and business customers) complete at the end of 2005, HQD notes that the telephone response capacity and the capacity for treatment of the office workload were taxed to their limit and that some adjustments will be necessary before beginning delivery 3. Consequently, in order to confront these problems, HQD has identified a series of actions that will allow a harmonious implementation of delivery 3 (D3) (implementation of the CIS with the residential customers) planned for 2007.

These actions will aim to foster an optimal habituation of resources while minimizing the impacts on customers. We note that among the challenges of the L3 delivery, the number of customers affected is seven times greater than the L2 customers (2,800,000 customers) while the number of employees to be trained and highly impacted is three times bigger than for L2 (1,200 compared to 400 employees).

Thus, over the period of 2005-2007, the additional costs amount to \$20.0 million, of which \$8 million in 2007 were forecast in the operating costs, mainly for the addition of 300 staff members in order to undertake the identified stabilization actions (see HQD-7, Doc 4).

Moreover, the complete analysis of the potential impacts of the L3 implementation and the mitigation actions continues. The optimal solution should be established between now and October 2006. Moreover, the customer reactions following the implementation will be continuously monitored and will influence the adjustment of the required actions. In this context, it follows that the implementation benefits of the CIS project, first expected in 2007, will be deferred until 2008 and the following years.

### **3.2.2 System Automation**

As planned, the operating costs for carrying out the automation program (see R-3565-2005) grow from \$1.0 million in 2006 to \$5.0 million in 2007, an increase of \$4.0 million. These costs related to the hiring of specialized resources, such as engineers and technicians, specialized in automation and telecommunications services.

### **3.2.3 Supplying Customers in the Region of Schefferville**

In compliance with the R-3602-2006 filing, total costs of \$8.0 million were planned in 2007, in comparison with \$4.0 million in 2006. The costs are broken down as follows:

- Urgent repair work (see HQD-7, Doc 5)
- Maintenance of operation of the power plant (see HQD-7, Doc 5)
- Distribution and customer service costs (see HQD-7, Docs 4 and 5)

### **3.2.4 HydroSolution**

HQD notes that in July 2005, through its subsidiary Hydro Quebec Valtech Inc, the Distributor sold HydroSolution. As presented in the rate filing R-3579-2005, this transaction have a net impact of \$3.0 million in 2006 and 2007, corresponding to the portion of fixed costs (including costs of mailing and collecting invoices) that was reinvoyced to HydroSolution until the moment of the sale and from which regulated activities may have benefited in the past.

### **3.3 System Performance**

During recent years, HQD has concentrated its efforts on the management of new subscribers, as well as on work that aims to increase the transmission capacity to meet the increase in demand. This situation, accompanied by the cost freeze, forced HQD to postpone some activities related to maintenance and control of vegetation, without threatening short-term system reliability.

However, HQD notes a slight degradation in the normalized service continuity indicator (IC) over the past few years<sup>1</sup>. Even if analyses leading to a full understanding of the elements responsible for this performance decrease are not complete, this situation adds to the elements that have already been invoked to increase the expenses related to the distribution infrastructure for electricity.

This overall context is even more worrisome when the maintenance program is considered, with an anticipated decrease in the capacity to undertake work. Indeed, HQD predicts, over the next few years, important decreases in the numbers of linespersons and jointers due to retirement, and may rely on the expertise of external contractors. However, the capacity of the external workers to meet these labour needs is unknown, given that outsourcing has not been done for over 10 years. HQD should prioritize this succession problem, informed

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<sup>1</sup> See Section 2.3 of HQD-3, Doc 1 which covers the new standard for the calculation of the continuity indicator as established from the IEE Std 1366-2003 Guide, as well as Section 3.1 of HQD-14, Doc 1 for the changes in the continuity indicator.

by the fact that the development of new employees requires a period of five years for a complete qualification.

This is why one of the key elements of the current rate case aims to gradually increase, over the coming years, the dollar amounts provided, both for costs and investments, in order to ensure an optimal reliability of the system and to limit future negative impacts that could cause anomalies in the distribution system. Through this approach of proactive and progressive management of cost increases, HQD will avoid a one-time reaction requiring massive expenses to meet situations where the reliability of the system would be below its objectives.

The following sections present improvement strategies for the Distributor's system performance retained for the year 2007.

### **3.3.1 Vegetation Control**

HQD owns a distribution network of approximately 100,000 km, of which 46% is found in wooded areas, which is one of the highest rates on a North American scale (reference: PA Consulting).

The main activities with respect to vegetation control include pruning, deforesting and felling work, as well as the treatment of customer requests. All of these activities have the objective of improving public and worker security. Pruning also aims to improve wave quality, while the felling has an impact of the improvement of the continuity indicator and the reduction of weather vulnerability. Finally, the deforestation allows for the reduction of future pruning costs.

HQD notes over several years a more rapid growth in vegetation, as well as an important increase in extreme weather, with increasing severity and over longer periods than in the past. These elements, which are out of the control of the Distributor, create pressure on activities related to vegetation. As such, HQD

notes in the recent years, an important increase in the costs related to the teams who reestablish service.

This situation is also reflected on the level of the performance indicator, Continuity Indicator – vegetation (*IC – végétation*)<sup>2</sup>, of which a detailed analysis of the component indicators<sup>3</sup>, reveals an increase in the rate of breakage caused by vegetation and the increase in the average duration of power failures per interrupted customer. The normalized *IC – végétation*, for which the average over 2002-2005 was at 19 minutes/customer, was at 23 minutes/customer in 2005.

HQD judges that this increase in the *IC – végétation* is the result of the progressive decrease in the volume of pruning and felling activities over recent years. Indeed, combined with the operating cost freeze between 2003 and 2005, several elements contributed to lengthening the management cycle for vegetation, including the following:

- increase in unit costs (inflation) caused specifically by the costs of external contractors and fuel;
- new work methods to ensure the security of workers were adopted, which resulted in a decrease in productivity by approximately 15%;
- the extent of the distribution network increased by approximately 0.7% per year over the period of 2001-2005.

Therefore, the combination of the main elements had the effect of reducing the level of activity by approximately 28% and consequently, increasing in a significant manner the average pruning cycle with respect to the norms in place. This average cycle is currently 4.8 years and it even exceeds 5 and 6 years in some sites with wooded zones and high vegetation growth. This situation may increase the security risks for the public and that of the works, in addition to impacting the quality of service.

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<sup>2</sup> *IC-végétation* measures the number of minutes of service interruption caused by vegetation, per customer, for all of the customers served, and this, by type of system.

<sup>3</sup> The components of *IC-végétation* include the power failure rate, the average duration of an interruption and the average number of customers interrupted.

In spite of all the above, and considering the high rate of wooded areas, the PA Consulting benchmarking report shows that the costs per km on the system are on average 25% lower than those of other benchmarked companies, while the cost per customer is 10% less.

HQD proposes therefore to increase the expenditure rate over the coming years in order to maintain and stabilize the continuity indicator for vegetation at its historical performance level. For 2007, an additional amount of \$10 million in external services was planned to this effect, which corresponds to an increase of 25% of the budget dedicated to these actions since 2003. HQD will exercise a rigorous follow-up of the results of its increased efforts in vegetation control.

### **3.3.2 System Maintenance**

In 2007, HQD plans to dedicate an additional \$14 million to maintenance and expects to increase these costs progressively over the coming years. To meet these objectives, HQD plans to undertake the hiring and training of approximately 120 staff members (mainly linespersons and jointers) (see HQD-7, Doc 4).

HQD will follow the evolution of the results of its interventions via its indicator related to material defects for the overhead system (*IC – défauts matériels (réseau aérien)*) and will adjust the level of future spending according to the results obtained. We note that the volume of this sub-indicator was 24 minutes/customer, which is equivalent to the average over the 2002 to 2005 period.

The Distributor intends to act on two levels:

- an additional \$7 million in 2007 for corrective maintenance work to correct anomalies in the system components that no longer meet the operating standards of the system;

- an additional \$7 million in 2007 for preventative maintenance aiming more specifically to undertake system inspections in order to identify the work that should be carried out before the components are completely inoperable.

These two types of intervention are complementary because preventative work reduces the future costs of corrective work.

The following sections present the maintenance tasks in a more detailed manner.

### **3.3.2.1 Corrective Maintenance**

HQD notes that despite quality control, the system has about 15 components such as circuit-breaker, isolators, and electric sleeves that are no longer compliant to technical requirements. The replacement cost of these components adds up to over \$200 million, which represents an average of \$20 million/year for the next 10 years, while the budget dedicated to corrective maintenance was in the order of \$5 million over recent years.

The consequences of such a situation are the following:

- security risks for workers, who work on or near components with mechanical or electrical characteristics that are no longer compliant with technical requirements;
- risks for public safety (e.g., falling conductors);
- the increase in the frequency and duration of planned interruptions due to the ban of any voltage intervention on or near these components. Workers must therefore intervene when the voltage is off;
- an upward tendency in the indicator related to material defects for the overhead system (*IC – défauts matériels (réseau aérien)*); even though the correlation between the surveyed number of non-compliant components and the changes in service continuity is difficult to demonstrate, the premature deterioration of components leads to an

increase in the probability of breakage and the number of service interruptions.

### **3.3.2.2 Preventative Maintenance**

Preventative maintenance is a proactive activity that allows the identification of potential anomalies in the system components.

While actions that promote a reduction of planned interruptions and control of vegetation have a short-term impact on system performance, an optimal management of the system maintenance and equipment will produce more long-term gains.

The recent changes in the maintenance standards associated with system growth have had the impact of creating an increase in hours related to preventative maintenance (approximately 60,000 hours). HQD emphasizes that inadequate preventative maintenance on the medium-voltage network could lead to an increase in equipment failure in the medium term. These failures will eventually be reflected by deterioration in service continuity and an increase in corrective maintenance budgets (power failures).

The annual budget dedicated to the inspection and maintenance program has been in the order of \$48 million over recent years. HQD notes that:

- the efforts devoted to inspection do not allow the fulfillment of the maintenance standards;
- new standards lead to additional actions and costs;
- the efforts have not been modified recently to take into account system growth.

The Distributor therefore proposes an increase of \$7 million in the preventative maintenance budget, which will allow the respect of inspection programs, as well as the maintenance of system reliability.

### **3.4 Other Activities of the Distributor**

#### **3.4.1 Public Prevention Campaign on Safety**

The number of major electric events causing material damages, electrification and, in certain cases, death, is an important concern for the Distributor. Thus, during the years of 2001 to 2005, 165 known events occurred, which caused 29 deaths by electrocution (of which 11 were on the Distributor's installations), 108 electrifications and/or burns (of which 99 were on the Distributor's installations), as well as 28 cases of material damages.

HQD notes that:

- the number of electrical events and deaths by electrocution related to its facilities and its electrical products is not improving;
- customers give top priority to the fact that HQD must ensure the safety of its installations.

The budget allocated to this activity (in the order of \$0.6 million over recent years), serves to cover programs centered on youth, specialized workers, and front-line intervenors, as well as some televised ads in the summer season.

In order to satisfy coroners' recommendations following investigation reports, HQD plans an additional amount of \$1.2 million annually over the period of 2007 to 2011 in order to cover the costs of public prevention campaign on electricity (see HQD-7, Doc 5).

### **3.4.2 Provisions – Operating Variances**

In the decision D-2006-34, the Régie recognizes that in the context of prudent budget management, HQD can make overall provisions in order to protect itself against variances that could occur during the year. As such, HQD planned a provision of \$17.6 million for 2007 (see HQD-7, Doc 5).