

**ALLOCATION METHODOLOGY FOR SUPPLY COST  
TREATMENT AT THE MARGIN**



**CONTENTS**

<b>1</b>	<b>DECISION OF THE RÉGIE</b>	<b>5</b>
<b>2</b>	<b>THE TECHNICAL COMMITTEE'S PROCEEDINGS</b>	<b>6</b>
<b>3</b>	<b>ALTERNATIVE SCENARIO CHOICES</b>	<b>8</b>
<b>4</b>	<b>DESCRIPTION OF THE HOURLY COST SCENARIO</b>	<b>10</b>



## 1 DECISION OF THE RÉGIE

1 In its D-2005-34 decision, the Régie accepted the Distributor's proposal for 2005,  
2 namely a cost distribution of supply according to a global treatment, but was not laid out  
3 to rule in a definitive way. The Régie requested, for the next rate filing, that the  
4 Distributor file, for review, a new proposal for a method of allocation of the supply costs  
5 with a treatment at the margin.

6

7 The Regie considered amongst other things that the Distributor made an overly  
8 restrictive interpretation of article 52.2 of the Law. In particular, according to the Régie:

- 9       ▪ The Law would not specify if the treatment retained by the Régie for the  
10       distribution of the costs of post-heritage supply that must be identical or  
11       different from that of the heritage block;
- 12       ▪ The Law would allow the recourse to different methods for the alloaction from  
13       heritage and post-heritage electricity;
- 14       ▪ The Régie must decide which method corresponds best to the spirit of the  
15       Law while adequately satisfying the principles of causality, applicability and  
16       simplicity.

17 According to the Régie, the total consumption profile of the Distributor could, with time,  
18 differ significantly from the specific and particular characteristics from the heritage  
19 product established with Decree 1277-2001 and that in this context, the global treatment  
20 would not make it possible to reflect the causality of the costs adequately. The Régie  
21 indicated in its decision the importance that:

- 22       ▪ The adopted method should have most accurately picked up the causal link  
23       between supply costs and the customers for whom the costs were incurred;

- 1           ▪ The methods of supply cost allocation were to reflect the supply strategy as  
2 accurately as possible so as to establish a linkage between the  
3 characteristics of consumption of the various rate categories and the products  
4 used to satisfy these needs.

5

6 Considering that the alternative methods had not been evaluated at their fair value in  
7 the R-3541-2004 file, the Régie requested of the Distributor to develop an alternative  
8 method of allocation of the supply costs by distinguishing the costs of the heritage  
9 electricity block and those from the post-heritage block. The Régie specified certain  
10 elements that the Distributor was to consider, namely:

11

- 12           ▪ To fix a volume of heritage electricity per consumer category based on the  
13 classified curve of Decree 1277-2001;
- 14           ▪ To define methods of adjustment in the possibility where, for a given year, the  
15 volumes of heritage electricity consumed by a consumer category which  
16 would be lower than volume granted initially;
- 17
- 18           ▪ To allocate the costs of post-heritage electricity based on the characteristics  
19 of the supply products and the users of these products.

20

## **2 THE TECHNICAL COMMITTEE'S PROCEEDINGS**

21 To develop this method of distribution, the Régie required of the Distributor to create a  
22 technical committee to explore the various possible avenues and to carry out an  
23 analysis report of the advantages and disadvantages of the various alternative  
24 approaches, to be presented at the time of the next rate case, in addition to submitting a

1 proposal for an alternative method of supply costs allocation for review. The committee  
2 met twice in June 2005.

3 The Distributor submitted to the participants at the time of these meetings, two concerns  
4 relating to the treatment at the margin and the Régie's directives:

- 5       ▪ To meet both the government decree and the decision of the Régie  
6           concerning the volume allocation and the heritage electricity costs;  
7
- 8       ▪ To agree to a method for allocating the post-heritage electricity which takes  
9           into account both load and loss factors from the consumers categories and  
10          supply product characteristics.  
11

12 The committee agreed to evaluate the following four alternative scenarios:

- 13       ▪ Scenario A: Hourly cost
- 14       ▪ Scenario B: Use factors of post-heritage
- 15       ▪ Scenario C: Ratio of post-heritage power / energy
- 16       ▪ Scenario D: Hourly cost by product type

17 To make this evaluation, the technical committee gave itself 11 criteria of evaluation,  
18 gathered in two categories, which are:

- 19       ▪ Respect the requirements of the Régie (i.e. the spirit and the letter of Law in  
20           Decree 1277-2001: adjustment methods, supply management, product  
21           characteristics and consumer characteristics);  
22
- 23       ▪ Recognize general principles (causality, equitable and uniform treatment,  
24           technical applicability/aspect, simplicity, stability).

1 An analysis matrix was completed including all the speaker's comments. The committee  
2 considers that the Régie has, with this report created in Hqd-12 Document 1.2, the  
3 information necessary to examine the advantages and disadvantages of the various  
4 alternative scenarios.

### **3 ALTERNATIVE SCENARIO CHOICES**

5 Among the scenarios examined by the technical committee, the Distributor would retain  
6 scenario A if the Régie decided on one treatment at the margin of the post-heritage  
7 costs. Scenario A elaborates to answer as much as possible all the Régie's  
8 expectations raised in decision D-2005-34. Compared to a universal treatment, this  
9 scenario requires, just as with scenarios B and D, that volumes and characteristics of  
10 the heritage electricity by consumer categories be fixed for the years to come. More  
11 specifically, this scenario:

12

- 13       ▪ Make a distribution of heritage electricity volumes to the consumer categories  
14       on the basis of the year 2006, i.e. following the attainment of the heritage  
15       volume (2005);
- 16       ▪ Adjust the categorical consumption characteristics on the basis of the Decree  
17       1277-2001;
- 18       ▪ Take into account product characteristics by integrating all the costs of the  
19       post-heritage contracts on an hourly basis forecasted in the supply plan for  
20       2006;
- 21       ▪ Allot the costs on an hourly basis with each consumer categories according to  
22       their presence at each hour.

23 Note that this scenario does not make any association of supply contracts to consumers

1 at the margin. In the case where there are specific calls for tenders, a breakdown by  
2 product quickly becomes a complex and arbitrary exercise.

3 Short of being able to directly make a pairing of the supply agreements specific to  
4 particular consumer categories, which is not possible, this method groups the  
5 purchases and reflects the cost signal at the margin.

6 Additionally, scenario A does not make an explicit use of the usage factors nor loss  
7 rates at the margin, as prescribed by the Law. The usage factors at the margin could be  
8 implicitly considered since processing on an hourly basis is done in a more precise way  
9 than the usage factors which are derived in more simple way, i.e. to distribute higher  
10 costs in peak periods and lower costs in off-peak periods. Regarding the loss rates at  
11 the margin, this is identical to the heritage loss rates since the heritage consumption  
12 volume will be automatically adjusted according to the Distributor's total loss rates.

13  
14  
15

16 Scenario A, with hourly treatment of the post-heritage consumption costs and volumes,  
17 is more detailed and precise than the other alternative methods, such as with scenario  
18 B where the distribution is based on Usage Factors at the margin. The hourly cost  
19 signals at the margin would be adapted in the context of the Distributor's use of  
20 information relating to the supply plan scheduled for 2006.

21

22 On the other hand, it is important to specify that scenario A applied in the context of a  
23 decree based on the Distributor's proportions of total consumption volumes, like that of  
24 this year (see part Hqd-12, Document 1.3), would lose its relevance to consumer  
25 category if volumes of heritage consumption were revised each year by the government  
26 as it did this year and the past year.

1 The same goes for each of the other scenarios examined by the technical committee. In  
2 the case of scenario B which calculates the heritage electricity consumption by  
3 differential volumes and characteristic, it would be the same as the universal treatment  
4 if the government carried out an annual revision of the heritage volumes based on the  
5 Distributor's total volumes. The only variation which could remain would be related to  
6 the adjustments to reflect the heritage curve of Decree 1277-2001. This adjustment can  
7 be made year after year without modifying the unit costs.

8 In the case of scenario C, which is an alternative to the universal treatment by modifying  
9 the ratio of power / energy from the post-heritage portion, it can be a scenario that,  
10 always in the context being updated by the government to the heritage electricity of the  
11 total volume, would cause a treatment at the margin since the post-heritage portion  
12 would be treated differently from heritage portion, the result of which resembles in a  
13 certain way that of scenario A with hourly costs. This scenario would, however, partly  
14 reflect the cost characteristics of the supply contracts.

15  
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17

18 Scenario D corresponds primarily to scenario A with a degree of additional detail which  
19 requires an exercise which can only be arbitrary, aimed at separating the supply  
20 volumes between consumer categories: heritage, post-heritage and in the case variable  
21 or shapeable post-heritage energy. The Distributor believes that this scenario can be  
22 considered later time could be considered in a second case, after the establishment, if  
23 that were to happen, of scenario A.

#### **4 DESCRIPTION OF THE HOURLY COST SCENARIO**

24 The following paragraphs describe the four (4) stages necessary to proceed to the  
25 establishment of the post-heritage electricity costs according to scenario A:

- 1       1. Determine the characteristics of heritage electricity by consumer categories
- 2             according to Decree 1277-2001;
- 3       2. Determine the characteristics of post-heritage electricity by consumer categories;
- 4       3. Determine the characteristics of the various supply products;
- 5       4. Match the characteristics of the products and users at the margin.

6  
7  
8  
9   The objective of stage 1 is to distribute the block of heritage electricity by consumer  
10 category to "approximate as much as possible" the heritage curve of Decree 1277-2001  
11 since one must realize that the heritage curve and the Distributor's curve for the  
12 projected pilot year 2006 are not identical.

13   The heritage curve as set in Decree 1277-2001 is a forecast established in 2001 for the  
14 years 2005/2006. This curve is presented as total energy consumption (8,760 hours),  
15 without distinguishing the allocation by consumer category. It represents a total of  
16 179,521 GWh with a maximum peak of 34,342 MW including station consumption and  
17 transmission and distribution losses at a rate of 8.4 %. The load factor based on the 300  
18 highest hours of the year is 67.2 %.

19  
20  
21   As for the Distributor's curve for the year 2006, it is presented on a forward basis and is  
22 detailed by consumer categories for a total of 186,939 GWh, including a loss rate of 7.5  
23 % and excluding station consumption. The load factor based on 300 hours is 67.7%.

24  
25   The Distributor initially establishes the characteristics of consumption per consumer  
26 categories based on the total volume of the 2006 curve, different from method of  
27 measurement permitted to establish the consumption profiles for the actual year (in this

1 case 2004). These actual profiles are adjusted to remove the climatic effects and to  
 2 correspond to the forecasted total sales of 2006.

3

4 Thereafter, the total curve is adjusted to the volume of heritage consumption (178,860  
 5 GWh without station consumption and with a loss rate of 7.5 %) proportionally for each  
 6 category. The results of these two operations correspond to those of the global  
 7 treatment with a load factor of 67.7 %.

8

9 An adjustment is then applied to the characteristics by consumer category in order to  
 10 correspond to the load factor of 67.2 % of the curve of the decree. The usage factors  
 11 from each category of consumers are decreased so as to force the Distributor's Usage  
 12 Factor to match the level of the curve of Decree 1277-2001. The two Heritage energy  
 13 curves are thus identical correspondingly each portion of heritage electricity is  
 14 distributed by consumer category.

15 Table A below presents calculations necessary in order to proceed to stage 1 of the  
 16 alternative treatment:

17

**Table A**  
**Supply costs and consumption characteristic of heritage electricity and post - heritage by consumers category for the projected pilot year 2006**  
**Alternative scenario A**

Consumers Category	Stage 1: Year under review 2006				Stage 2: Adjustment with heritage volume				Stage 3: Adjustment with the curve of the decree 1277-2001 and the Xxxx-2005 decree		
	Overall consumption (GWh)	Sales Proportion (%)	Operating time ratio (%)	Rate of losses (%)	Heritage consumption (GWh)	Operating time ratio (%)	Rate of losses (%)	Unit cost (€/kWh)	Heritage consumption (GWh)	Operating time ratio (%)	Unit cost (€/kWh)
<b>Domestic</b>											
Rates D and DM	56 188	32,3%	47,3%	9,2%	53 782	47,3%	9,2%	3,20	53 782	47,2%	3,20
Rate DH	4	0,0%	51,5%	9,2%	3	51,5%	9,2%	3,10	3	51,1%	3,10
Rate DT	2 597	1,5%	79,2%	9,2%	2 486	79,2%	9,2%	2,68	2 486	78,4%	2,68
Total	58 788	33,8%	-	-	56 271	-	-	-	56 271	-	-
<b>Small and average power</b>											
Rate G and fixed rate	12 862	7,4%	62,7%	9,2%	12 312	62,7%	9,2%	2,88	12 312	62,5%	2,88
S9 Rate	1 108	0,6%	68,4%	8,9%	1 061	68,4%	8,9%	2,79	1 061	67,8%	2,79
Rate M	26 836	15,4%	78,2%	8,5%	25 687	78,2%	8,5%	2,67	25 687	77,8%	2,67
Rates of lighting	556	0,3%	82,8%	9,2%	532	82,8%	9,2%	2,65	532	81,5%	2,65
Total	41 363	23,8%	-	-	39 592	-	-	-	39 592	-	-
<b>Great power</b>											
Rate L	47 049	27,1%	95,1%	5,5%	45 021	95,1%	5,5%	2,46	45 021	93,8%	2,46
Rate H	10	0,0%	76,4%	6,8%	9	76,4%	6,8%	2,65	9	75,4%	2,65
Special contracts	26 656	15,3%	98,6%	5,2%	25 507	98,6%	5,2%	2,43	25 507	97,3%	2,43
Total	73 714	42,4%	-	-	70 537	-	-	-	70 537	-	-
<b>Total</b>	<b>173 865</b>	<b>100,0%</b>	<b>67,7%</b>	<b>7,5%</b>	<b>166 400</b>	<b>67,7%</b>	<b>7,5%</b>	<b>2,77</b>	<b>166 400</b>	<b>67,2%</b>	<b>2,77</b>

18

1 It should be noted that the first concern forwarded to the Distributor by the technical  
2 committee cannot be rigorously followed, insofar as the adjustment of the  
3 characteristics to correspond to Decree 1277-2001 (8,760 hours consumption fixed with  
4 a total Usage Factor of 67.2 %) which slightly modifies the costs of the heritage  
5 electricity of the consumer categories is contrary to those calculated from Decree 759-  
6 2005. The change in the characteristics of the consumer categories is obviously not  
7 taken into account, the usage factors per category thus obtained do not correspond to  
8 any of the years since 2000. Goals to maintain the characteristics of consumption, to  
9 reflect the heritage curve of the Decree 1277-2001, would require the modification of the  
10 consumption volumes per consumer category, which would have many more impacts.

11

12

13

14 It should also be noted that at this stage, the heritage curve of the decree by consumer  
15 category is reduced (classified curve).

16 For stage 2, it is necessary to determine the characteristics of post-heritage electricity  
17 by consumer categories. The characteristics of consumption of heritage volume were  
18 fixed at stage 1 and as it is impossible to establish characteristics of consumption at the  
19 margin different from the measurement method, these characteristics are determined by  
20 the differential between the curve of the Distributor (forward basis) and the heritage  
21 curve adjusted with Decree 1277-2001 (historical basis). The characteristics at the  
22 margin of the consumer categories are thus attributed by the:

- 23       ▪ Characteristics of the overall consumption by consumer category for the  
24       projected pilot year;
- 25       ▪ Characteristics of consumption of the heritage electricity of the consumer  
26       categories, adjusted to also respect the characteristics of the curve of the  
27

1 Decree 1277-2001 and the unit costs by consumer categories of Decree 759-  
2 2005;

- 3       ▪ Management of supply that sets the classification of the curve of the Decree  
4       1277-2001 on a forward basis.

5 In effect, the supply management exercise, illustrated in a more detailed way in the  
6 report of the technical committee, allows one to match on a forward basis the curve of  
7 Decree 1277-2001 distributed by consumer categories at stage 1 with the curve of the  
8 total needs of the Distributor.

9 The difference between the curve of the total needs and the curve for heritage electricity  
10 allows one to establish the needs for post-heritage electricity by consumer category on  
11 an hourly and forward basis.

12 Stage 3 consists of determining the characteristics of the supply products. The various  
13 products considered in the supply strategy described in Hqd-2, Document 2. These  
14 products can be put in three large groups:

15

16           1. Heritage electricity

17           2. Post-Heritage electricity – base products

18           3. Post-Heritage electricity – short and very short term products

19 To proceed to this stage, certain elements must be considered. First, the majority of the  
20 contracts, except those signed with Hydro-Quebec Production, are currently confidential  
21 and treated as such by the Régie. An alternative produced-by-product treatment thus  
22 raises application difficulties. Moreover, at the time of filing of evidence to the Régie, the  
23 needs of the consumers are not necessarily met completely by the existing contracts.

24

25 To establish the unit costs weighted by the post-Heritage needs on an hourly and  
26 forward basis an average hourly unit cost is established for each contract according to

1 the characteristics of these agreements. The same exercise is undertaken for the  
2 estimated needs not filled by calls to tender and an average hourly unit cost is  
3 estimated. This average weighted hourly unit cost is established starting from the  
4 volumes foreseen for each contract. If specifically identified within the contracts,  
5 differentiated time costs are then considered.

6

7 This way of considering the characteristics of the various supply products does not  
8 presuppose a classification of the power/energy contract costs starting from the usage  
9 factors of the contracts and characteristics of heritage electricity, as the Régie raised in  
10 its decision. This classification is circumvented insofar as the hourly unit costs implicitly  
11 take account of the power and energy, and this subtlety avoids an exercise of  
12 distribution of the contract usage factors according to their correspondence with the  
13 characteristics of the consumer category post-heritage consumption, which would be  
14 very complex and in somewhat arbitrary.

15

16

17 The fourth and final stage of the alternative scenario consists of establishing the unit  
18 cost of post-heritage electricity applicable to each consumer category. To do this, post-  
19 Heritage volumes of the categories given for each hour at stage 2 are applied to the  
20 average weighted hourly unit costs given at stage 3. The treatment of the two preceding  
21 stages makes it possible to specifically identify the marginal user's needs and the  
22 various products on an hourly basis.

23

24 For the projected pilot year 2006, the result of the distribution of the heritage and post-  
25 heritage electricity supply costs according to this method are presented at table B  
26 below:

1

**Table B**  
**Supply Costs and consumption characteristic of heritage electricity and post - heritage by consumers category for the projected pilot year 2006**  
**Alternative scenario A**

(1) Consumers Category	(2) (3) (4) (5) Heritage and post-heritage consumption				(6) (7) (8) (9) Heritage consumption					(10) (11) (12) (13) Post-heritage consumption		
	Volume		Unit cost	Total cost	Operating time ratio (%)	Rate of losses (%)	Unit cost (¢/kWh)	Volume (GWh)	Total cost (M\$)	Unit cost (¢/kWh)	Volume (GWh)	Total cost (M\$)
	(GWh)	(%)	(¢/kWh)	(M\$)								
<b>Domestic</b>												
Rates D and DM	56 188	32.3%	3,48	1 956,1	47.2%	9,2%	3,20	53 782	1 722,4	9,72	2 406	233,8
Rate DH	4	0,0%	3,38	0,1	51,1%	9,2%	3,10	3	0,1	9,61	0	0,0
Rate DT	2 597	1,5%	3,00	77,9	78,4%	9,2%	2,68	2 486	66,6	10,13	111	11,3
Total	58 788	33,8%	-	2 034,1	-	-	-	56 271	1 789,1	-	2 517	245,1
<b>Small and average power</b>												
Rate G and fixed rate	12 862	7,4%	3,17	407,6	62,5%	9,2%	2,88	12 312	354,7	9,62	551	53,0
G9 Rate	1 108	0,6%	3,08	34,2	67,6%	8,9%	2,79	1 061	29,6	9,62	47	4,6
Rate M	26 836	15,4%	2,96	794,6	77,6%	8,5%	2,67	25 687	685,8	9,47	1 149	108,8
Rates of lighting	556	0,3%	2,90	16,1	81,5%	9,2%	2,65	532	14,1	8,47	24	2,0
Total	41 363	23,8%	-	1 252,6	-	-	-	39 592	1 084,2	-	1 771	168,4
<b>Great power</b>												
Rate L	47 049	27,1%	2,76	1 296,9	93,8%	5,5%	2,46	45 021	1 109,4	9,25	2 028	187,6
Rate H	10	0,0%	2,93	0,3	75,4%	6,8%	2,65	9	0,2	9,22	0	0,0
Special contracts	26 656	15,3%	2,73	726,7	97,3%	5,2%	2,43	25 507	620,6	9,23	1 149	106,1
Total	73 714	42,4%	-	2 023,9	-	-	-	70 537	1 730,2	-	3 178	293,7
<b>Total</b>	<b>173 865</b>	<b>100,0%</b>	<b>3,05</b>	<b>5 310,6</b>	<b>67,2%</b>	<b>7,5%</b>	<b>2,77</b>	<b>166 400</b>	<b>4 603,5</b>	<b>9,47</b>	<b>7 465</b>	<b>707,1</b>

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