

**REPORT OF THE WORKING GROUP  
ON THE POST-HERITAGE COST ALLOCATION METHOD**

*Original: 2006-08-16*

*HQD-11, Document 2  
Attached*

# **Final Report of the Technical Committee on Cost of Service Allocation Method**

**Issues Related to the Application of the Hourly Method for  
the Supply Costs of Post-Heritage Electricity Supply**

**July 7, 2006**

# ***Presentation Plan***

- ◆ **Issues related to the application of the hourly method to the costs of post-heritage electricity**
  1. Régie decision
  2. Description of the hourly cost method
  3. Additional explanations of the 4 issues
  4. Remarks of the Technical Committee

## Appendices

- Committee participants
- Comments and statements submitted in writing (separate file)
- Additional information requests (separate file)

# 1. Régie Decision

- ◆ Various issues related to the application of the hourly method and its results were broached by the experts on the file without, however, any elaborate analysis supporting these positions
- ◆ The Régie therefore does not want to rule in a definite manner on a question of this importance without having deepened the examination of these issues
- ◆ Asks HQD and the intervenors to supply more explanations on the 4 specific issues related to the application of the hourly method for the costs of post-heritage electricity:
  - The establishment of post-heritage load profiles and their evolution
  - The establishment of hourly costs from the characteristics of the contracts resulting from calls for tender
  - The reflection of cost causality
  - The treatment of constraints related to the confidentiality of the data obtained from the contracts
- ◆ Asks HQD to file for the next rate case:
  - The technical committee report
  - The cost allocation as a function of:
    - the global approach
    - the hourly approach

## ***2. Hourly Cost Method***

### **◆ Description of the Method**

- In response to the Régie's concerns and requirements
- Makes a different allocation of the costs between the heritage pool and the post-heritage electricity.
- Takes into account the Government decrees (1277-2001, 759-2005)
- Integrates the product characteristics, including, specifically, the costs of the contracts on an hourly basis, as established according to the Supply Plan
- Assigns to each customer class this cost on an hourly basis in function of their presence at each hour
- No explicit utilization of load factors, nor loss rates at the margin
- Discussed in a technical committee last year
- Only one new element:
  - the non-fixed allocation of the consumption volume of the heritage pool by customer class

## ***2. Hourly Cost Method***

- ◆ **Process in four (4) steps**

- 2.1 Determine the characteristics of the heritage electricity by customer class
- 2.2 Determine the characteristics of the post-heritage electricity by customer class
- 2.3 Determine the characteristics of all of the post-heritage supply products on an hourly basis
- 2.4 Do a matching of the characteristics of the post-heritage supply products and the users at the margin on an hourly basis

## **2.1 Determine the Characteristics of the Heritage Electricity**

### **◆ Based on the last Government Decree**

- To establish a cost by customer class, the Government must absolutely define a consumption volume by customer class. This is what it did and indicated in its Decree 759-2005
- Since the heritage pool volume has been reached, the method used by the Régie to determine these volumes (i.e. volumes by customer class), has been to use volumes that are proportional to HQD's total requirements (Decree 1070-2004)
- The Régie takes note of this treatment (D-2006-34, p.65) in considering the consumption volume indicated in the Decree as being the reference

### **◆ By the next rate case, the Government should probably issue a third decree to determine the cost of the heritage electricity by using:**

- Volumes that are proportional to HQD's total profile
- The 2007 sales forecast
- The load research program for different customer classes.
- Note that for a global treatment as required by the Régie in 2007, it is imperative to have a decree to reflect the same proportions of HQD's volumes

## ***2.1 Determine the Characteristics of the Heritage Pool***

### **◆ What this means:**

- The consumption characteristics of the heritage pool are proportionally identical to that of the whole of HQD's consumption, in the same way as the consumption characteristics of post-heritage electricity
- Consequently, the consumption characteristics for both the heritage pool and the post-heritage electricity should evolve in the same proportions as HQD's total consumption.

### **◆ What this implies:**

- There is not first come, first serve
- The allocation of the heritage pool volume to the customer classes is revised progressively as a function of the evolution of HQD's needs
- Avoids an arbitrary split with the attainment of the heritage pool
- Corresponds indirectly to the reference manual and generally accepted practices in the industry

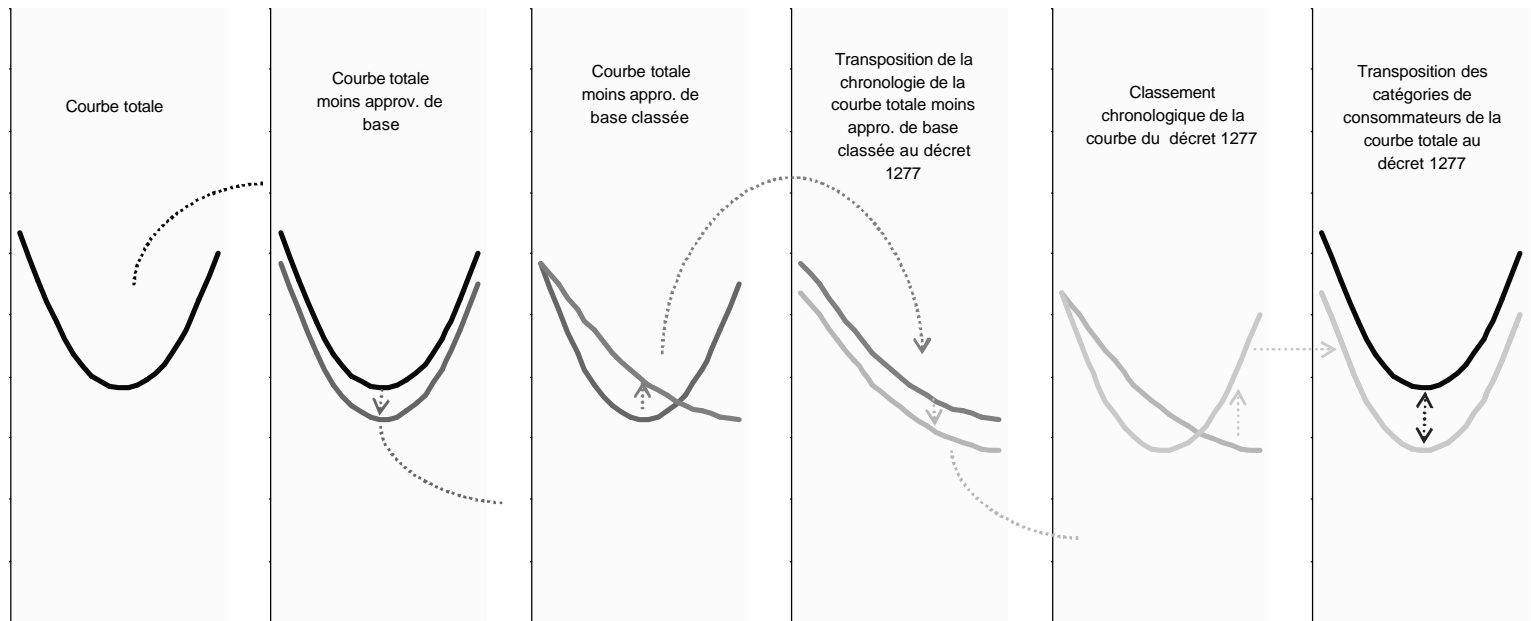


## **2.1 Determine the Characteristics of the Heritage Pool**

- ◆ **To apply the hourly method, it is essential to reflect Decree 1277-2001**
  - This is different from the remarks in the Régie decision
  - The post-heritage supply is made in reference to this curve
  - HQD's total curve and that of the decree are not identical
  
- ◆ **HQD's Total Curve**
  - Deterministic forecast for cost allocation from a 2007 stochastic forecast for the management of supply
  - Chronological load curve broken down by customer class with 188,071 GWh and 35,696 MW, including power station consumption, 68% load factor (300 hours) 68% and loss rate of 7.5%
  
- ◆ **Decree 1277-2001 Curve**
  - Hourly duration curve without breakdown by customer class with 179,521 GWh and 34,342 MW, including power station consumption, 67% load factor (300 hours) and loss rate of 8.4%

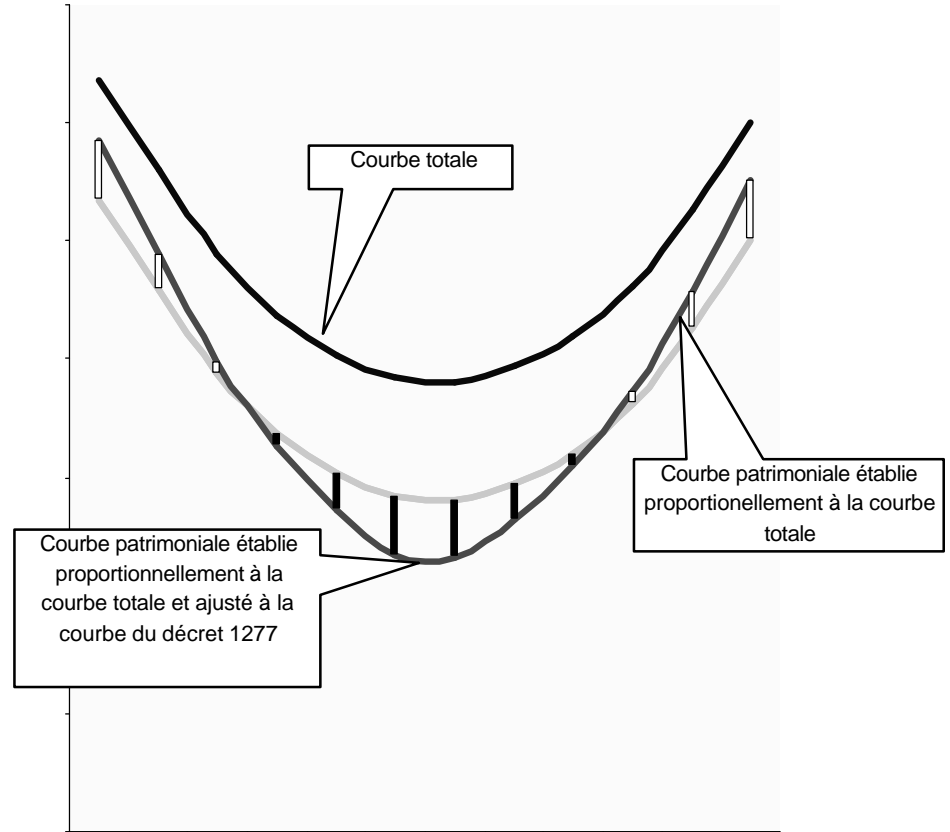
## 2.1 Determine the Characteristics of the Heritage Pool

- ◆ **Establishment according to supply management**
  - No major incidence on consumption characteristics
  - Rather at the level of weighted hourly costs



## 2.1 Determine the Characteristics of the Heritage Pool

- ◆ **Illustration of steps to determine the heritage pool consumption**
  - Transposition of the consumption characteristics of the customer classes to the heritage pool curve
  - Adjustment on an hourly basis to correct the variances between the heritage pool curve establish proportionally from the HQD curve and the Decree 1277-2001 curve
- ◆ **Modification of the profile that is transposed to each customer class**



## 2.1 Determine the Characteristics of the Heritage Pool

- ◆ Modified consumption profiles do not have an impact at the moment on 2007 heritage pool costs

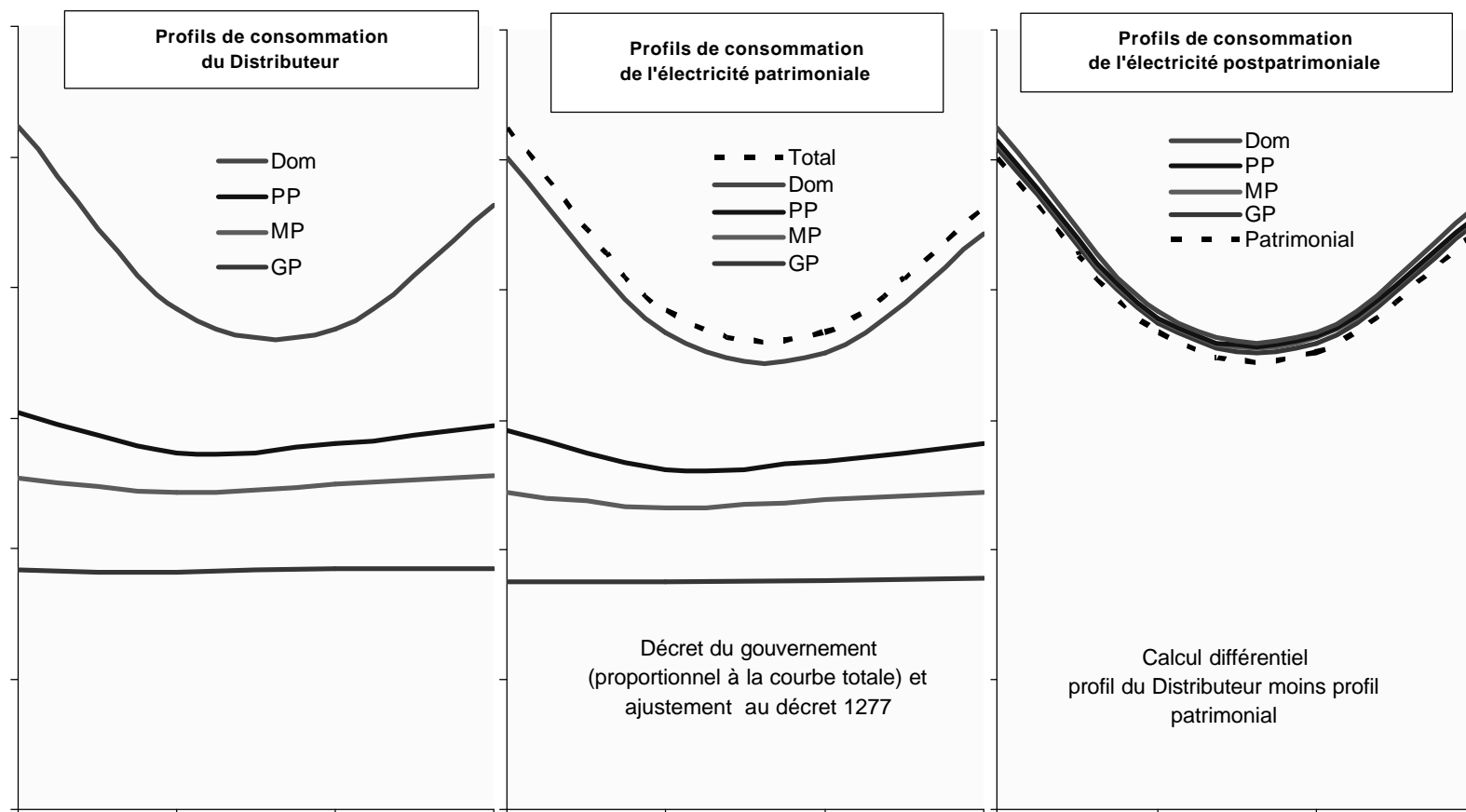
Catégorie de consommateurs	Étape 1 : Année de référence 2007				Étape 2 : Ajustement au volume patrimonial				Étape 3 : Ajustement à la courbe du décret 1277-2001		
	Consommation totale (GWh)	Proportion des ventes (%)	Facteur d'utilisation (%)	Taux de pertes (%)	Consommation patrimoniale (GWh)	Facteur d'utilisation (%)	Taux de pertes (%)	Coût unitaire (¢/kWh)	Consommation patrimoniale (GWh)	Facteur d'utilisation (%)	Coût unitaire (¢/kWh)
Domestique	58 876	34%	48,2%	9,2%	55 999	48,2%	9,2%	3,18	55 999	48,0%	3,18
Petite puissance	14 555	8%	63,7%	9,2%	13 843	63,7%	9,2%	2,87	13 843	63,3%	2,87
Moyenne puissance	27 465	16%	78,2%	8,5%	26 123	78,2%	8,5%	2,67	26 123	77,4%	2,67
Grande puissance	74 053	42%	96,4%	5,4%	70 434	96,4%	5,4%	2,45	70 434	94,9%	2,45
<b>Total</b>	<b>174 949</b>	<b>100,0%</b>	<b>67,8%</b>	<b>7,5%</b>	<b>166 400</b>	<b>67,8%</b>	<b>7,5%</b>	<b>2,77</b>	<b>166 400</b>	<b>67,2%</b>	<b>2,77</b>

## ***2.2 Determine the Characteristics of the Post-Heritage Electricity***

- ◆ **Differential between the total needs and the heritage pool electricity**
  - Very slow and graduation evolution of the total consumption characteristics by customer class due to:
    - the allocation of volumes to the customer classes
    - the trend changes in the consumption characteristics of the customer classes
  - Total requirements established from load research program for different customer classes.
  
- ◆ **Characteristics of the post-heritage electricity of customer classes are dependent on:**
  - Total consumption characteristics
  - Characteristics of the Decree 1277-2001 curve
  - Supply management which creates an hourly duration curve of the heritage pool decree curve on a chronological basis

## 2.2 Determine the Characteristics of the Post-Heritage Electricity

### ◆ Illustration of the Characteristics of the Customer Classes for 2007



## **2.3 Determine the Characteristics of the Different Supply Products**

### **◆ Supply products**

- Heritage pool electricity

- P-h electricity – base products

Meet the overall needs of HQD (long-term and short-term base, long-term flexible)

"Take or Pay" with a high Load Factor (LF) except for the modifiable contracts. These base products will take on more and more importance over the time. Long-term coverage.

- P-h electricity – short-term and very short-term products

Needed to meet unpredictable variance of which the causes can be multiple – notably demand fluctuations, weather variances, the failure of a supplier to respect a contract

Short-term programmable products, bilateral purchase transactions, very short-term products, energy exchanges.

## 2.3 Determine the Characteristics of the Different Supply Products

### ◆ Considerations

- The contracts are confidential for the moment except those of HQ Production
- At the time of filing the evidence before the Régie, customer needs are not necessarily entirely covered by the supply contracts
- Some products are only used in real time and are not necessarily considered in the forecasts (some margin associated with heritage pool, framework agreement)

### ◆ Detail of the products planned for 2006

Forecast of the Post-Heritage Supply Costs

		Volumes (TWh)	Coût d'achat (M\$)	Coût unitaire (¢/kWh)
<b>Prévision des coûts d'approvisionnements postpatrimoniaux</b>				
Long-terme	TCE	1,358		
	Bowater	0,071		
	Cartier	0,055		
	total	1,484	142,8	9,62
Court-terme	AO 2005-01	2,229	194,2	8,71
	À engager	4,841	416,5	8,60
		7,070	610,7	8,64
Total		8,554	753,5	8,81

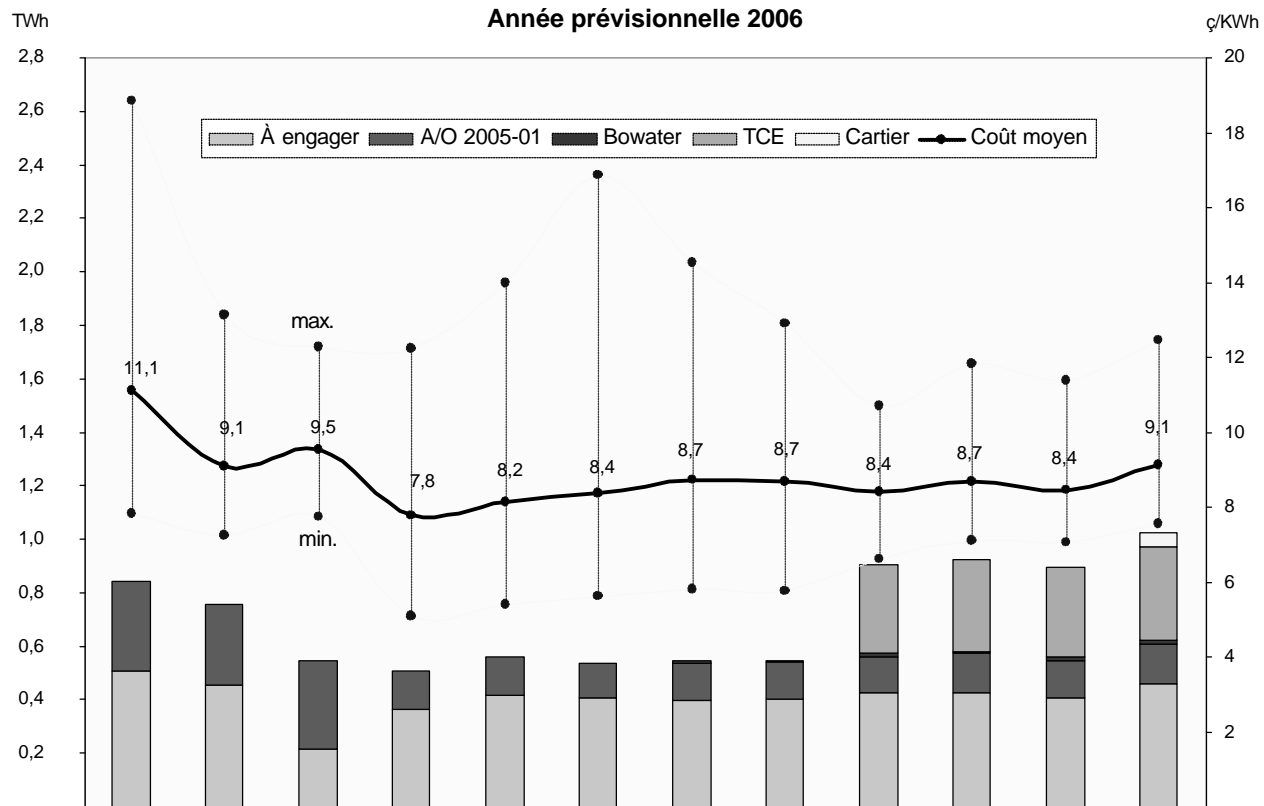


## ***2.3 Determine the Characteristics of the Different Supply Products***

- ◆ **The Distributor establishes its needs and its weighted unit costs for its post-heritage needs on an hourly basis and by chronological order**
  - The average hourly unit cost is established for each of the contracts as a function of the characteristics of the agreement
  - The same exercise is undertaken for the unfulfilled forecast needs by calls for tender, and for which the average hourly unit cost is estimated
  - This weighted average hourly unit cost is established from the forecast volumes for each of the contracts
  - Differentiated hourly costs are considered if they are specifically identified with contracts

## 2.3 Determine the Characteristics of the Different Supply Products

### ◆ Illustration of the calculation of hourly costs for 2006



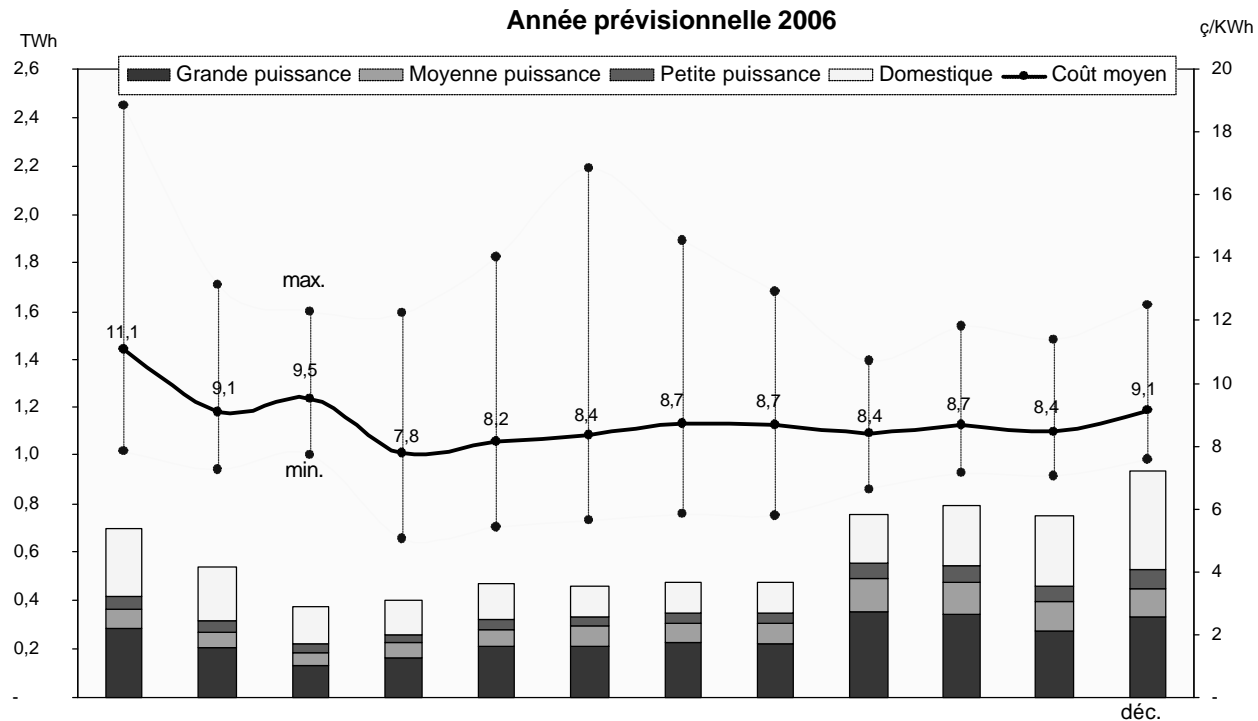
### ◆ Exercise undertaken by HQ Distribution – Supply and transmitted to Regulatory Affairs

## ***2.4 Matching the Characteristics of the Different Supply Products with Users at the Margin***

- ◆ **For each hour, the average post-heritage cost is applied to the post-heritage volumes by customer class**
  - Matching of the two preceding steps allows the specific identification of the needs of users at the margin and the supply of the different products on an hourly basis
  
- ◆ **Average before 165 TWh and average after 165 TWh**
  - Weighted cost for each customer class as a function of its presence at each of the hours of the year
  - No matching of specific supply contracts with specific customer classes
  
- ◆ **No specific utilization of the LF, nor of the loss rates at the margin**
  - LF will be implicitly considered with treatment on an hourly basis
  - Review of the heritage pool and post-heritage loss rates on the basis of the rate agreed to by HQD
  - No matching of the contract LFs to make them coincident with HQD's peak (no disaggregation of the contracts to separate the power and energy components)

## 2.4 Matching the Characteristics of the Different Supply Products with Users at the Margin

- ◆ Illustration of the matching undertaken by HQ Distribution – Regulatory Affairs



### ***3. Additional Explanations of the 4 Issues Related to the Application of the Hourly Cost Method for Post-Heritage Electricity***

- 3.1 The establishment of post-heritage consumption profiles and their evolution**
- 3.2 The establishment of hourly costs from the characteristics of the contracts resulting from the calls for tender**
- 3.3 The reflection of cost causality**
- 3.4 The treatment planned for the constraints associated with the confidentiality of the data related to these contracts**

### ***3.1 Establishment of Post-Heritage Consumption Profiles and Their Anticipated Evolution***

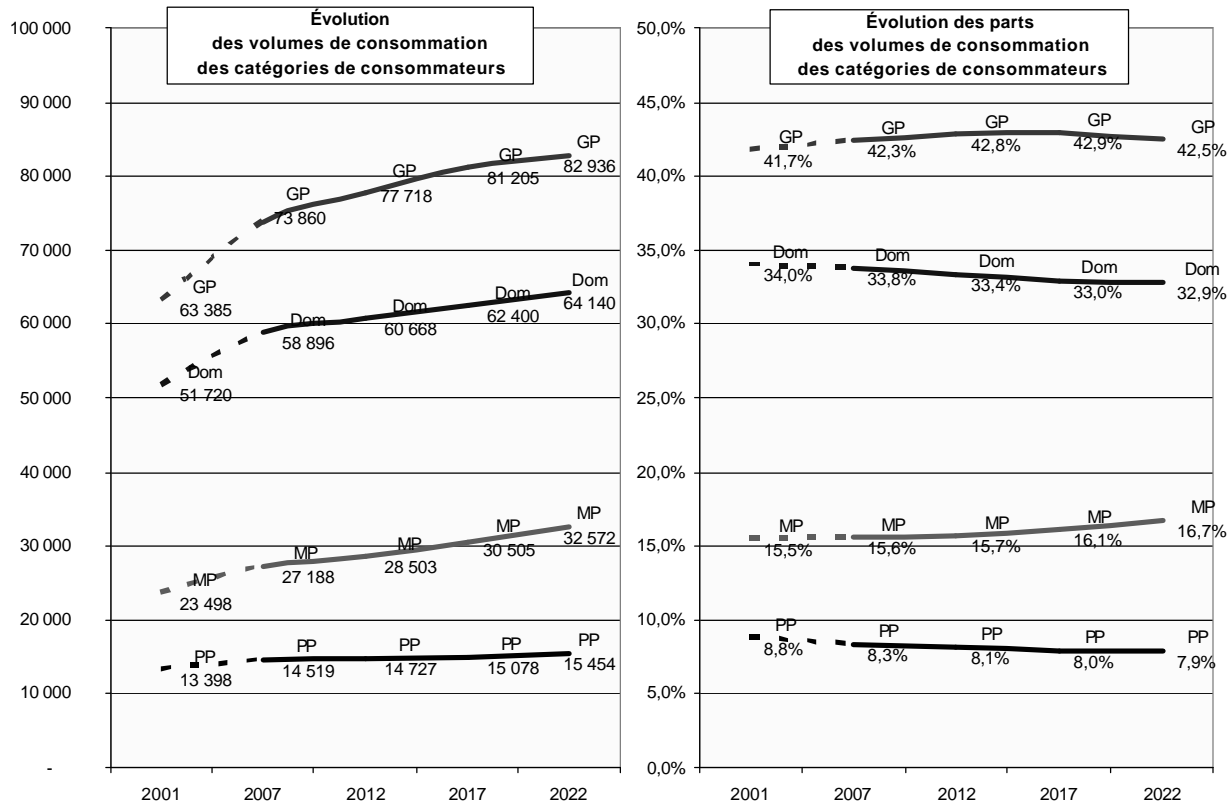
#### **◆ Additional Explanations**

- A) Evolution of the consumption volumes of the customer classes
- B) Evolution the Distributor's consumption profile
- C) Trends by customer class
- D) Relative Allocation of the heritage pool and the post-heritage electricity
- E) Effects of the Decree 1277-2001 curve
- F) Evolution of the capacity needs

### 3.1 Establishment of Post-Heritage Consumption Profiles and Their Anticipated Evolution

#### A) Evolution of the consumption volumes by customer class

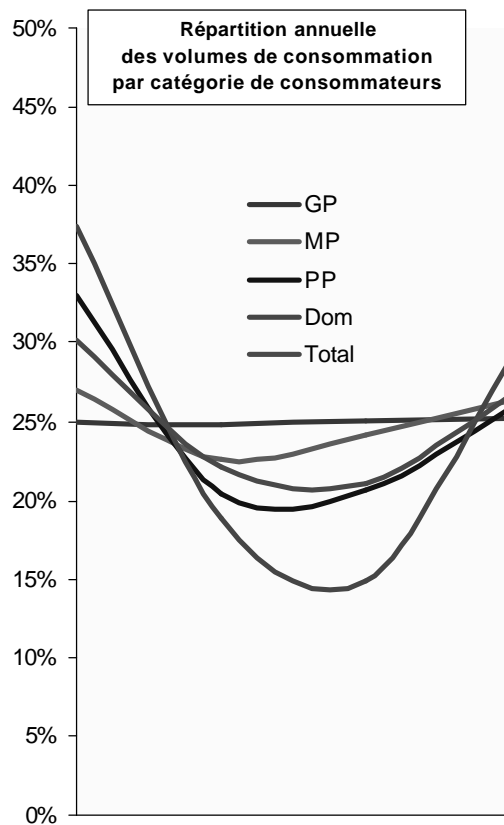
- On the basis of the forecast from August 2005, the portion of the total consumption volumes of the customer classes remains essentially the same



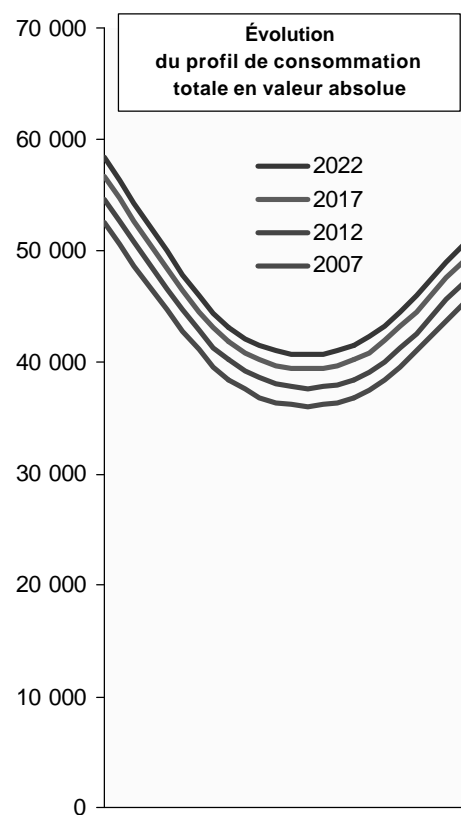
### 3.1 Establishment of Post-Heritage Consumption Profiles and Their Anticipated Evolution

#### B) Evolution of the Distributor's consumption profile

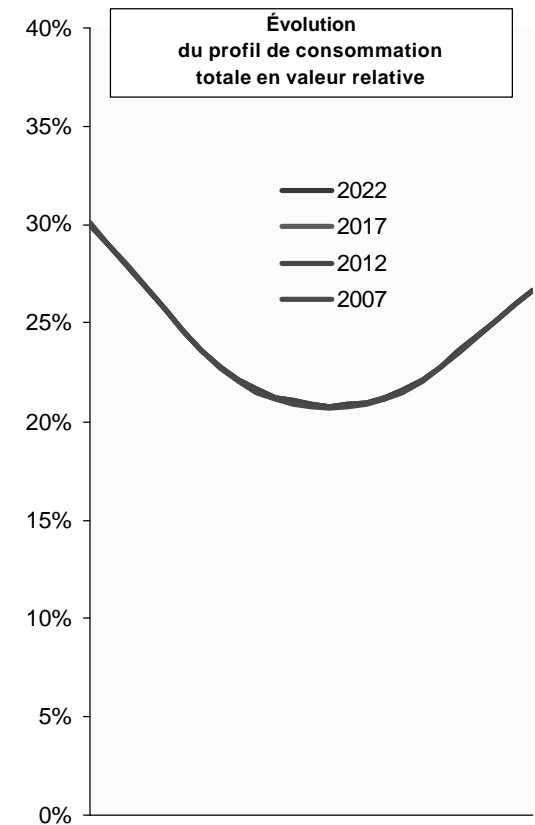
- Despite the different profiles for the customer classes, their evolution does not have a significant impact on the total profile of the Distributor



Annual allocation of the consumption volumes by customer class



Evolution of the total consumption profile in absolute values



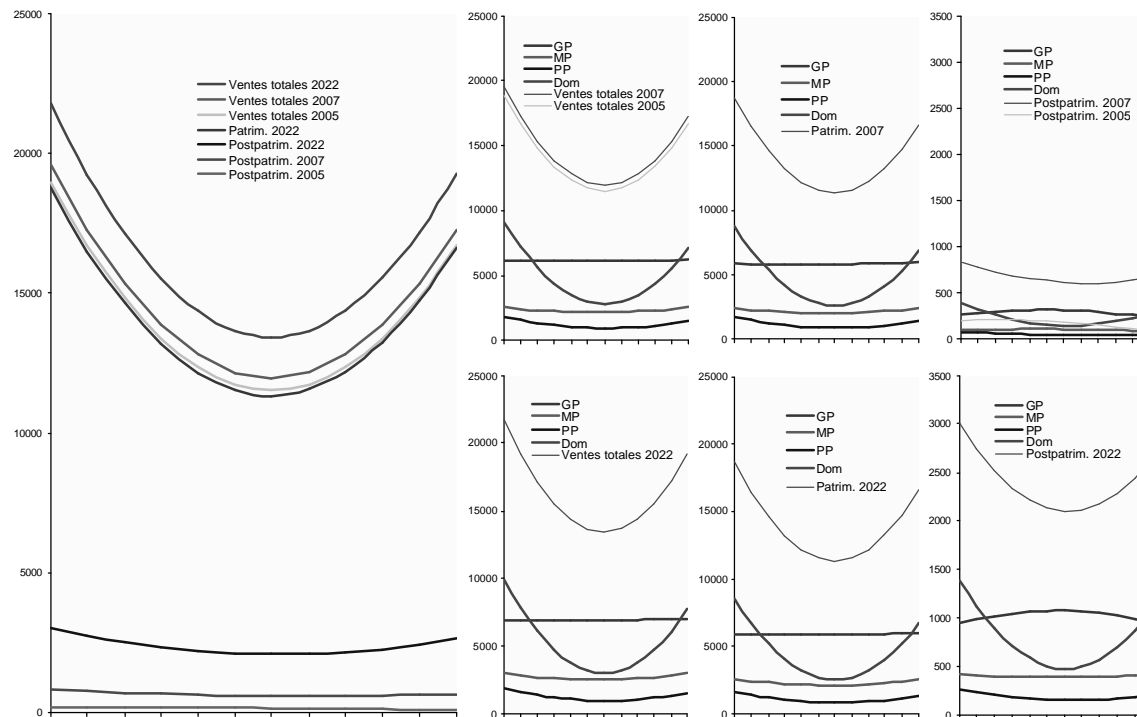
Evolution of the total consumption profile in relative values



# 3.1 Establishment of Post-Heritage Consumption Profiles and Their Anticipated Evolution

## C) Trend by customer class

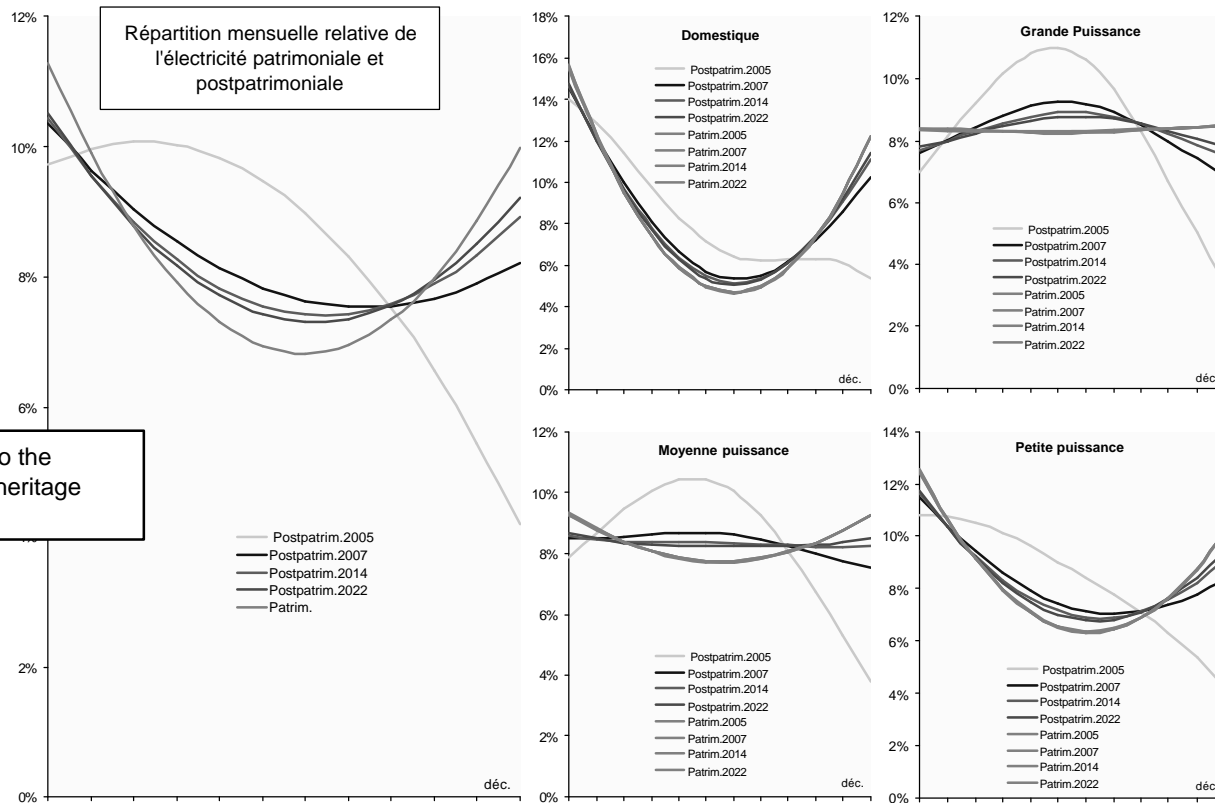
- The Decree 1277 curve carries a bias which transposes on the heritage pool profile and the post-heritage profile of the customer classes.
- The bias of the Decree 1277 curve does not correspond to, has never corresponded to, and will never correspond to the Distributor's consumption profile



# 3.1 Establishment of Post-Heritage Consumption Profiles and Their Anticipated Evolution

## D) Relative allocation of the heritage pool and the post-heritage electricity

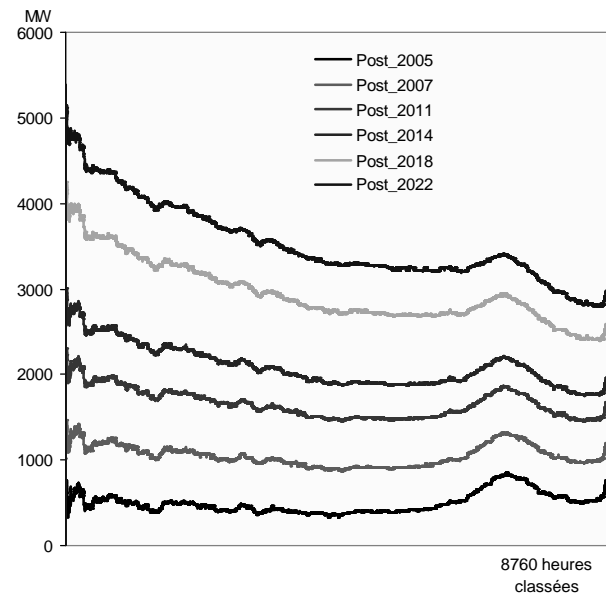
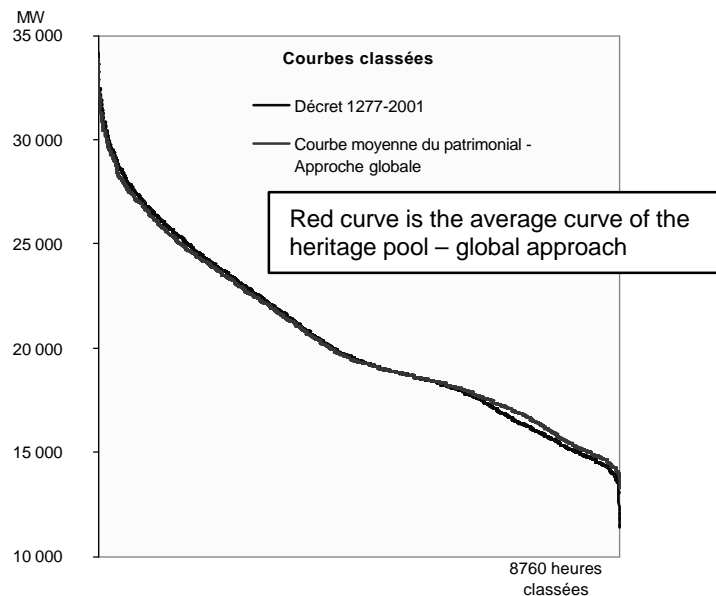
- The concave profiles of 2005 will correct themselves gradually, becoming convex over the years to come with sales growth, without completely eliminating the bias



### 3.1 Establishment of Post-Heritage Consumption Profiles and Their Anticipated Evolution

#### E) Effect of the 1277-2001 Decree Curve

- With the utilization of the hourly duration curve of the Decree in an hourly cost treatment, there is a transposition of the bias at the level of the customer classes.
- The post-heritage needs will always be relatively « unbalanced » between winter and summer; winter capacity exceeds summer capacity around 2011 to 2014
- All of the customer classes will be influenced, but not in a uniform manner



### 3.1 Establishment of Post-Heritage Consumption Profiles and Their Anticipated Evolution

#### F) The capacity needs reappear progressively

<b>Forecast of the Distributor's Needs</b>
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#### Prévision des besoins du Distributeur

	Énergie (GWh)		Puissance (MW)		FU (%)	
	total	postpatrim	total	postpatrim	total	postpatrim
2006	186,9	8,3	39 098	1 656	55%	57%
2007	188,1	9,7	38 309	1 867	56%	59%
2008	190,3	11,9	39 773	2 331	55%	58%
2009	191,7	13,2	40 337	2 895	54%	52%
2010	192,9	14,4	40 597	3 155	54%	52%
2011	193,8	15,2	40 734	3 292	54%	53%
2012	195,7	17,1	40 959	3 517	55%	56%
2013	196,3	17,8	41 204	3 762	54%	54%
2014	197,6	19,0	41 434	3 992	54%	54%
Patrimonial		178,9		37442		55%

## ***3.2 Establishment of the Hourly Costs from the Characteristics of the Contracts Resulting from Calls for Tender***

### **◆ Additional Explanations**

- A) Additional supply required
- B) Short-term calls for tender completed in 2005
- C) Example of contracts with HQ Production
- D) Example of the contract with TransCanada Energy
- E) Example of the wind energy integration contract with HQ Production
- F) Variation of the hourly cost
- G) Illustration of the weakness of the price signal of the hourly cost treatment

## 3.2 Establishment of the Hourly Costs from the Characteristics of the Contracts Resulting from Calls for Tender

### A) Additional supply requirements

	Approvisionnement additionnels requis (TWh)									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Besoins visés par le Plan</b>	183,7	186,9	188,1	190,3	191,7	192,9	193,8	195,7	196,3	197,6
- Volume d'électricité patrimoniale (incluant pertes)	178,9	178,9	178,9	178,9	178,9	178,9	178,9	178,9	178,9	178,9
+ <i>gestion des approvisionnements en temps réel</i>	0,4	0,3	0,5	0,5	0,3	0,3	0,3	0,3	0,3	0,3
<b>= Approvisionnement additionnels requis au-delà du volume d'électricité patrimoniale</b>	<b>5,3</b>	<b>8,3</b>	<b>9,7</b>	<b>11,9</b>	<b>13,2</b>	<b>14,4</b>	<b>15,2</b>	<b>17,1</b>	<b>17,8</b>	<b>19,0</b>
<b>- Approvisionnement non patrimoniaux (Existants ou en cours d'acquisition)</b>	<b>4,3</b>	<b>3,6</b>	<b>9,3</b>	<b>10,7</b>	<b>11,2</b>	<b>12,5</b>	<b>13,7</b>	<b>15,0</b>	<b>16,8</b>	<b>17,9</b>
?TransCanada Energy	-	1,4	4,1	4,1	4,1	4,1	3,9	3,7	4,1	4,1
?Hydro Québec Production - Base	-	-	2,6	3,1	3,1	3,1	3,1	3,1	3,1	3,1
?Hydro Québec Production - Cyclable <sup>1</sup>	-	-	1,8	2,2	2,2	2,2	2,2	2,2	2,2	2,2
?Contrats de biomasse	-	0,1	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3
?Contrats signés - Éolien I (990 MW)	-	0,1	0,7	1,1	1,5	1,9	2,3	2,7	3,0	3,0
?Contrat signé - Cogénération	-	-	-	0,0	0,1	0,1	0,1	0,1	0,1	0,1
?Appel d'offres d'énergie éolienne <sup>2</sup> (2 000 MW)	-	-	-	-	0,1	0,9	1,9	3,0	4,1	5,2
?Contrats de court terme signés	4,3	2,1	-	-	-	-	-	-	-	-
<b>= Approvisionnement additionnels requis</b>	<b>1,0</b>	<b>4,7</b>	<b>0,4</b>	<b>1,2</b>	<b>1,9</b>	<b>1,9</b>	<b>1,5</b>	<b>2,1</b>	<b>1,0</b>	<b>1,1</b>

<sup>1</sup> Selon un facteur d'utilisation de 100%.

<sup>2</sup> Selon l'hypothèse que le Distributeur contracte un service d'équilibrage offrant des livraisons uniformes sur l'ensemble de l'année (facteur d'utilisation de 30%).

Note 1: According to a LF of 100%;

Note 2: According to the hypothesis that HQD contracts for a load-balancing service offering uniform delivery throughout the year (LF of 30%).

## 3.2 Establishment of the Hourly Costs from the Characteristics of the Contracts Resulting from Calls for Tender

### B) Short-term calls for tender completed in 2005

		Produits et quantités	Prix
<b>A/O 2004-01</b>	Mai 2004	Flexible: 250 MW (janvier à décembre 2005)	7,8 ¢/kWh
<b>A/O 2004-03</b>	Novembre 2004	Flexible: 200 MW (janvier et février) Flexible: 100 MW (mars et avril) Base: 150 MW (janvier et février) Base: 50 MW (mars et avril) 5x16: 100 MW (mars et avril)	8,7 ¢/kWh
<b>A/O 2004-04</b>	Novembre 2004	Flexible: 100 MW (mai à septembre) Base: 100 MW (mai à septembre) 5x16: 100 MW (mai à septembre)	6,9 ¢/kWh
<b>A/O 2005-01</b>	Juin 2005	Base: 100 MW (octobre et novembre) Base: 200 MW (décembre) Puissance: 150 MW (décembre)	8,6 ¢/kWh
<b>A/O 2005-02</b>	Septembre 2005	Flexible: 100 MW (octobre à décembre) Puissance: 100 MW (décembre)	13,0 ¢/kWh

## 3.2 Establishment of the Hourly Costs from the Characteristics of the Contracts Resulting from Calls for Tender

### B) Short-term calls for tender completed in 2005 (continued)

GWh	janv-05	févr-05	mars-05	avr-05	mai-05	juin-05	juil-05	août-05	sept-05	oct-05	nov-05	déc-05	Total
ACHAT	327,0	280,1	330,1	232,2	389,1	539,4	613,7	463,5	400,5	192,9	0,0	194,0	3 962,7
Base	111,5	100,7	111,6	107,8	127,3	191,4	201,9	185,6	105,6	111,1	72,0	148,7	1 575,3
Base avec option de réduction	194,4	163,3	194,8	124,4	210,2	227,7	221,7	195,7	232,3	38,4	0,0	56,0	1 858,6
Bilatéral	21,2	16,2	23,8	0,0	51,5	120,3	190,2	82,3	62,7	43,4	0,0	95,8	707,3
Diminution des approv. de base	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	-72,0	-106,5	-178,5
Électricité interruptible	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Volume d'électricité mobilisé par le Distributeur au titre de l'électricité patrimoniale	19 875,3	16 544,6	17 085,3	14 045,2	13 125,4	12 329,2	12 286,6	12 848,9	12 085,9	13 771,0	15 894,7	18 705,0	178 597,1
Entente-cadre (dépassements)	1,1	0,0	0,0	3,3	5,2	9,6	11,8	3,9	5,6	4,4	0,7	0,0	45,6
É. patrimoniale inutilisée													308,5

K\$Cdn	janv-05	févr-05	mars-05	avr-05	mai-05	juin-05	juil-05	août-05	sept-05	oct-05	nov-05	déc-05	Total
ACHAT HQD	28 998	25 016	23 649	16 299	26 039	37 300	45 333	33 813	28 224	7 503	1 538	24 130	297 842
Base	10 604	9 348	8 129	8 003	8 403	12 729	14 526	13 417	6 692	8 044	4 624	11 479	115 999
Base option de réd.	15 906	14 438	13 483	8 296	14 096	15 538	14 959	12 287	14 592	-5 905	-3 085	-1 345	113 260
TCT	2 487	1 230	2 037		3 540	9 033	15 847	8 109	6 940	5 364		13 995	68 583
Diminution des approv. de base											-5 463	-9 811	-15 274
Total hors patrimoniale	28 998	25 016	23 649	16 299	26 039	37 300	45 333	33 813	28 224	7 503	-3 925	14 319	282 567
Coût de la puissance												400	400
Entente-cadre (dépassements)	332	0	0	247	391	717	886	292	419	331	55	0	3 669



## ***3.2 Establishment of the Hourly Costs from the Characteristics of the Contracts Resulting from Calls for Tender***

### **C) Example of contracts with HQ Production**

- Base delivery of 350 MW
  - Duration : 20 years
  - Capacity : 350 MW at \$80/kW/year
  - Energy : 2.9 TWh with LF of at least 94% at 4.05 ¢/kWh
  - Total price : 5.0 ¢/kWh – without losses (2007 with indexation in subsequent years)
  - No peak/off peak differentiation with respect to pricing
- Cyclable delivery of 250 MW
  - Duration : 20 years
  - Capacity : 250 MW at \$110/kW/year
  - Energy : 2.1 TWh with LF of at least 94% at 4.10 ¢/kWh
  - Total price : 5.4 ¢/kWh with LF of 94 % - without losses (2007 with indexation in subsequent years)
  - No peak/off peak differentiation with respect to pricing

## ***3.2 Establishment of the Hourly Costs from the Characteristics of the Contracts Resulting from Calls for Tender***

### **D) Example of the contract with TransCanada Energy**

- Base delivery of 507 MW
  - Duration : 20 years
  - Capacity : 507 MW
  - Energy : 3.6 TWh for a LF of 80% for 3 years and 4.1 TWh for a LF of 91.5% for the other years
  - Part of the pricing information is confidential

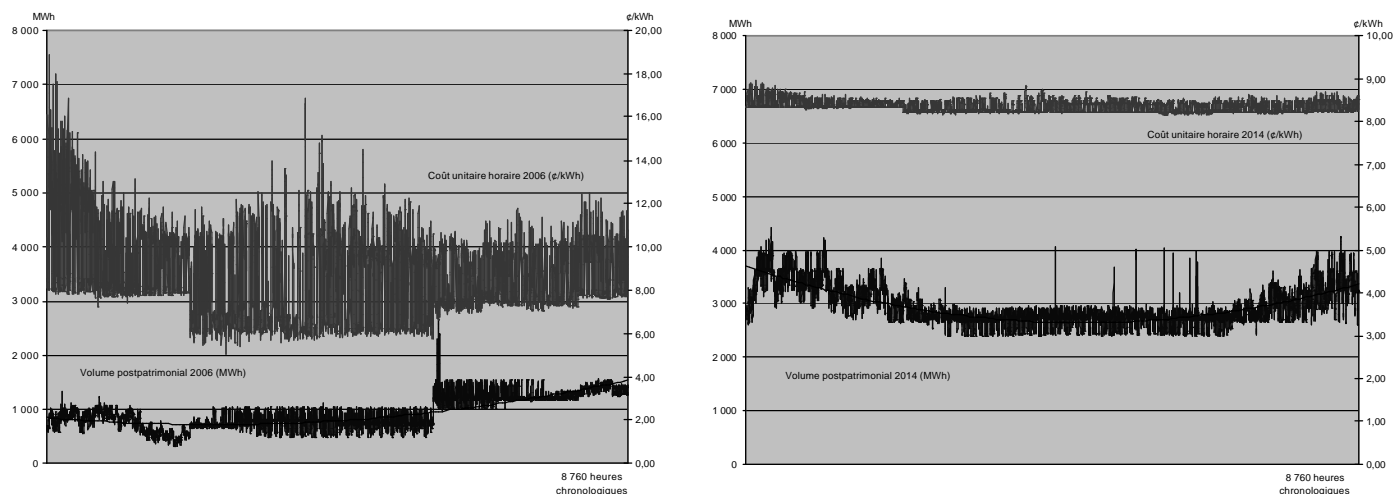
### **E) Example of the wind energy integration contract with HQ Production**

- ◆ Load-balancing and complementary capacity service associated with the 990 MW block of wind energy production (A/O-2003-02)
  - Duration : 5 years renewable for periods of 3 years
  - Complementary power : \$80/kW/year indexed for the variance between 35% of the 990 MW and the smallest demand of HQD's 300 highest load hours (minimum 15% of 990 MW)
  - Load-balancing service : variance in energy with respect to the 3.2 TWh forward for an LF of 35% and an indexed price of 7.5 ¢/kWh

## 3.2 Establishment of the Hourly Costs from the Characteristics of the Contracts Resulting from Calls for Tender

### F) Variation of the hourly cost

- Illustration of the consumption profiles and the unit cost at the margin for the years 2006 and 2014

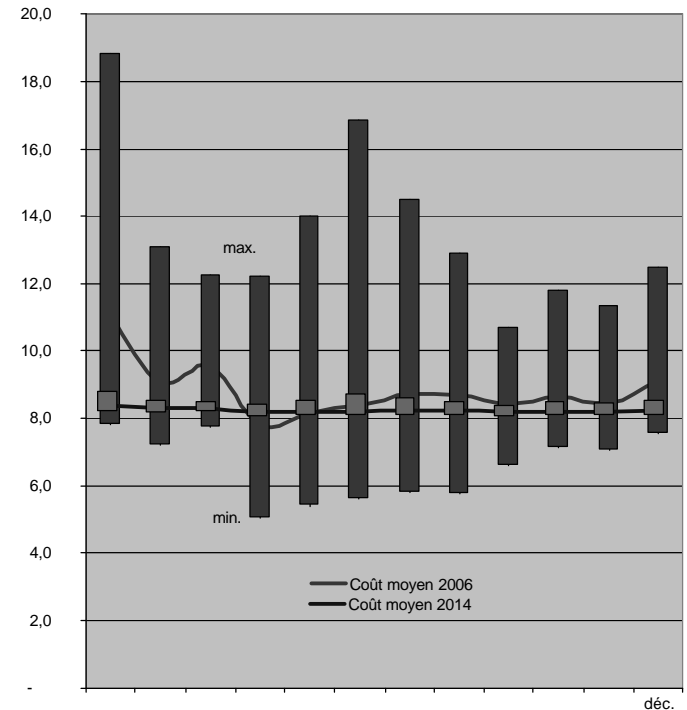


- Cost signal corresponding to that of Quebec's neighbouring markets
- Corresponds to the unit hourly cost considered for supply management for arbitrage purposes

## 3.2 Establishment of the Hourly Costs from the Characteristics of the Contracts Resulting from Calls for Tender

### F) Hourly cost variation (continued)

- Comparison of the unit cost for the years 2006 and 2014
- The unit cost is weighted at each hour for the supply contracts
- The long-term contracts do not provide a cost signal, contrary to the short-term contracts – an average unit cost is calculated for the overall contract
- The cost signal weakens rapidly over the coming years as a result of the decrease from 82% to 6% of the short-term portion before variances



## 3.2 Establishment of the Hourly Costs from the Characteristics of the Contracts Resulting from Calls for Tender

### G) Illustration of the variance in the cost signal between an hourly cost treatment based on supply management (e.g. 2 contracts) and a treatment based on a market price for two customers

Allocation of costs according to market prices

Répartition des coûts selon prix de marché

MW	Période			
	1	2	3	4
3250	10,0			
3000	10,0			
2750	10,0			
2500	10,0	7,5		
2250	10,0	7,5		
2000	10,0	7,5	6,5	
1750	10,0	7,5	6,5	
1500	10,0	7,5	6,5	5,5
1250	10,0	7,5	6,5	5,5
1000	10,0	7,5	6,5	5,5
750	10,0	7,5	6,5	5,5
500	10,0	7,5	6,5	5,5
250	10,0	7,5	6,5	5,5
TWh	7,1 TWh	5,5 TWh	4,4 TWh	3,3 TWh
Coût horaire	10,0 €/kWh	7,5 €/kWh	6,5 €/kWh	5,5 €/kWh

Allocation of costs according to supply management

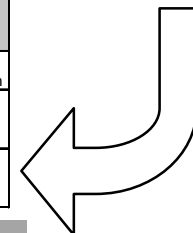
Répartition des coûts selon gestion d'approvisionnement

MW	Période			
	1	2	3	4
3250	8,7			
3000	8,7			
2750	8,7			
2500	8,7	8,7		
2250	8,7	8,7		
2000	8,7	8,7	8,7	
1750	8,7	8,7	8,7	
1500	7,4	7,4	7,4	7,4
1250	7,4	7,4	7,4	7,4
1000	7,4	7,4	7,4	7,4
750	7,4	7,4	7,4	7,4
500	7,4	7,4	7,4	7,4
250	7,4	7,4	7,4	7,4
Coût horaire	8,1 €/kWh	7,9 €/kWh	7,7 €/kWh	7,4 €/kWh
Contrat 1	7,1 TWh	FU 62%	8,7 €/kWh	
Contrat 2	13,1 TWh	FU 100%	7,4 €/kWh	
Total	20,3 TWh	FU 71%	7,8 €/kWh	

MW	Période			
	1	2	3	4
3250	10,0			
3000	10,0			
2750	10,0			
2500	10,0	7,5		
2250	10,0	7,5		
2000	10,0	7,5	6,5	
1750	10,0	7,5	6,5	
1500	10,0	7,5	6,5	5,5
1250	10,0	7,5	6,5	5,5
1000	10,0	7,5	6,5	5,5
750	10,0	7,5	6,5	5,5
500	10,0	7,5	6,5	5,5
250	10,0	7,5	6,5	5,5
Coût horaire	10,0 €/kWh	7,5 €/kWh	6,5 €/kWh	5,5 €/kWh
Client 1	9,3 TWh	FU 53%	<b>8,4 €/kWh</b>	
Client 2	11,0 TWh	FU 100%	<b>7,4 €/kWh</b>	
Total	20,3 TWh	FU 71%	7,8 €/kWh	

MW	Période			
	1	2	3	4
3250	8,7			
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1250	7,4	7,4	7,4	7,4
1000	7,4	7,4	7,4	7,4
750	7,4	7,4	7,4	7,4
500	7,4	7,4	7,4	7,4
250	7,4	7,4	7,4	7,4
Coût horaire	8,1 €/kWh	7,9 €/kWh	7,7 €/kWh	7,4 €/kWh
Client 1	9,3 TWh	FU 53%	<b>7,9 €/kWh</b>	
Client 2	11,0 TWh	FU 100%	<b>7,8 €/kWh</b>	
Total	20,3 TWh	FU 71%	7,8 €/kWh	

Cost variance between two customers with different consumption profiles



1,0 €/kWh

Signal de coût

0,2 €/kWh

### ***3.3 Reflection of causality links***

#### **◆ Additional explanations**

- A) Reminder of the principle of allocation of supply costs
- B) Hourly cost method is similar to one of the NARUC methods
- C) Particularities of the hourly cost method
- D) Example of a marginal treatment with a cost signal
- E) Comparison of methods
- F) Electricity market to establish a cost signal
- G) Evolution of the short-term market context in 2005
- H) Marginal costs to establish a cost signal

### ***3.3 Reflection of causality links***

#### **A) Reminder of the principle of allocation of supply costs**

- All of the cost methods make the distinction between the energy and power components of the supply costs at the classification step
- The costs attributed to the different power and energy cost components are then allocated according to different variants by customer class in the following manner:
  - Power: power costs are attributed to the customer classes as a function of the power demand during peak hours (NARUC, p. 22 «specific peak hours»)
  - Energy: energy costs are attributed to customer classes according to the kWh required to serve customers (NARUC, p. 22)
- As emphasized by NARUC, the choice of a cost allocation method for customer classes depends on the specific context of each company (p.22)

### ***3.3 Reflection of causality links***

- B) The hourly cost method is similar to one of the NARUC methods known as the "Probability of Dispatch Method"**
- The cost of each unit of production is divided by the number of operating hours of the unit of production in the year
  - The total cost of production is established on an hourly basis
  - The cost of production of each customer class is a function of its utilization at each of the hours
  - These costs by customer class *can* be recovered by an appropriate combination of power and energy costs (one assumes at the level of the rate structure)
  - The method requires a substantial information need



### ***3.3 Reflection of causality links***

#### **C) Particularities of the hourly cost method**

- The hourly cost method does not necessarily reflect a cost signal (power and energy) usually found in cost allocation methods
- The method assumes that this cost signal will be reflected through the contracts in a perfectly competitive electricity market
- It would be illusory to start with the contract components to reflect an adequate cost signal insofar as these contracts were not written in such a way as to allocate costs (e.g. HQ Production contract example). Moreover, there is no reference market to establish an hourly signal
- Certain incoherences to reflect :
  - a price signal at marginal costs in the price structure of the rates while the hourly method reflects a weak cost signal for post-heritage electricity, as opposed to the global treatment
  - a weak cost signal for supply with the hourly cost method based on a billing criterion principle while for the transmission cost, the billing criterion will not be the one retained as an allocation method in the R-3549-2004 filing

### ***3.3 Reflection of causality links***

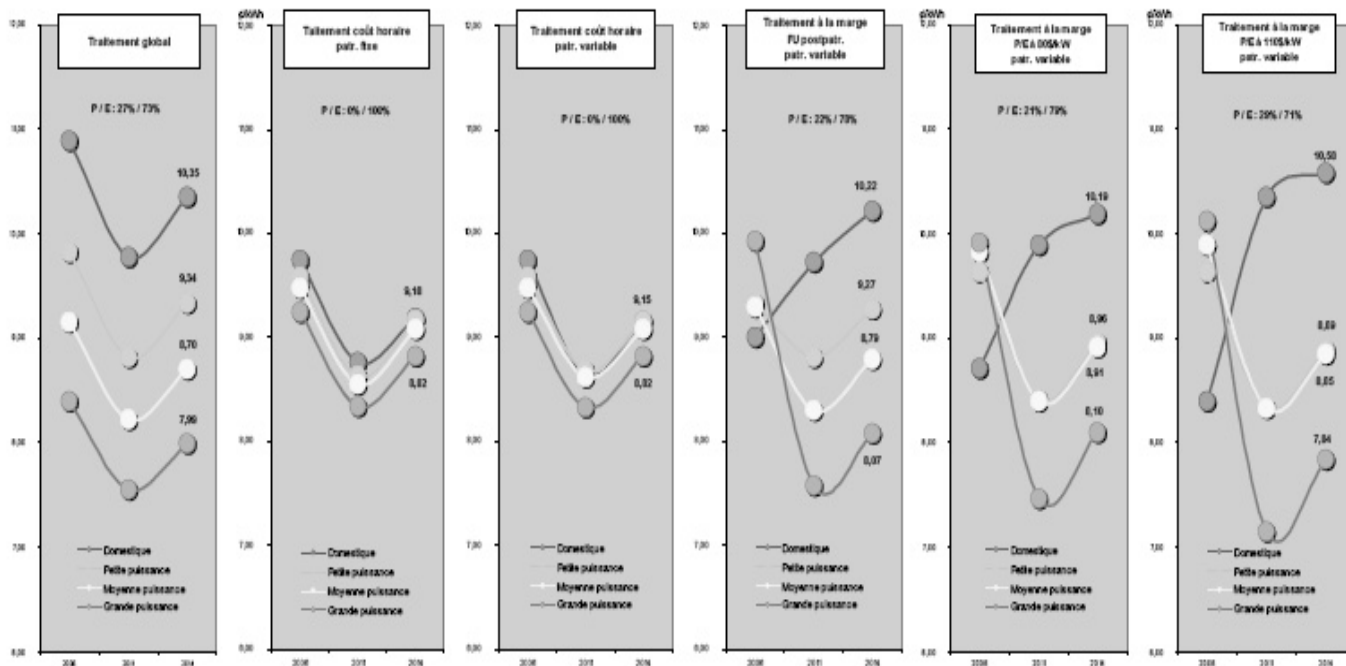
#### **D) Example of a marginal treatment with a cost signal**

- Cost of power of \$80/kW or 110 (indexed), derived from the minimum cost of power in the non-confidential supply contracts
- Cost of power multiplied by the maximum coincident post-heritage power (1PC) of each customer class
- P-h cost of energy, allocated to an average annual cost, is calculated as the difference of the total cost of the post-heritage supply contracts and the cost of the post-heritage capacity
- Contrary to the hourly treatment with a cost signal of 100% in energy only, the example calculated at \$80/kW would give a P/E (Power/Energy) cost signal of 21%/79%. With a calculation of \$110/kW, the P/E cost signal would be 29%/71%, which would be higher than the cost signal for the global treatment, which gives a P/E cost signal of 27%/73% of a comparative basis (1PC)
- We note that the application of a marginal treatment including a cost signal with the bias of the heritage hourly duration curve (1277-2001) will have inappropriate repercussions in the short-term with a capacity cost that does not correspond to HQD's peak period (summer and statutory holidays)
- The question is: what is the appropriate cost signal for the post-heritage portion given that some of the information is confidential (TCE, biomass, cogeneration) and some is still to come (complementary power contract for a second call for tender)?

### 3.3 Reflection of causality links

#### E) Comparison of methods

- With respect to cost allocation, a marginal treatment with a capacity cost signal would be more compliant with generally used methods than the hourly treatment, and would be much closer to the global method.



Graph 1: Global treatment; Graph 2: Hourly cost treatment with fixed heritage pool; Graph 3: Hourly cost treatment with variable heritage pool (this is the what OC called Hybrid Method); Graph 4: Marginal treatment, post-heritage LF, variable heritage pool; Graph 5: Marginal treatment, P/E at \$80/kW, variable heritage pool; Graph 6: Marginal treatment, P/E at \$110/kW, variable heritage pool

- With the exception of the two hourly treatments with no cost signal, the three other examples (post-heritage LF 300 hours, P/E \$80/kW 1 PC and P/E \$110/kW 1 PC) give results that are very similar to the global treatment

### ***3.3 Reflection of causality links***

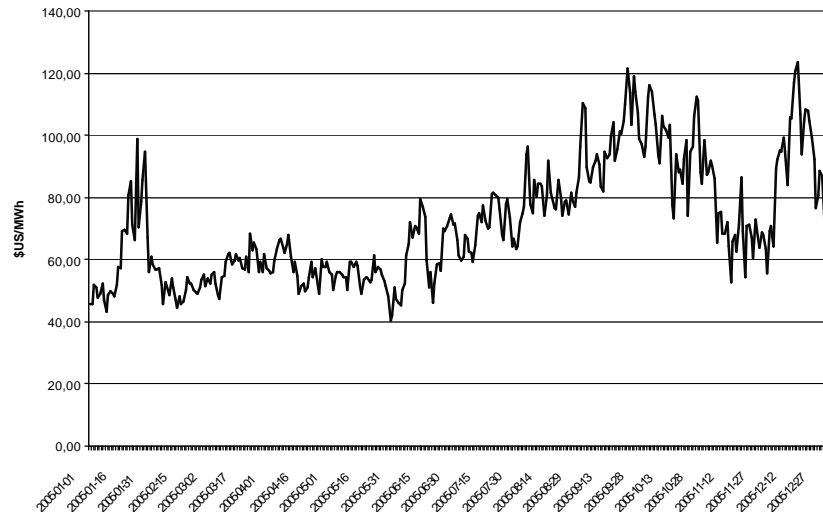
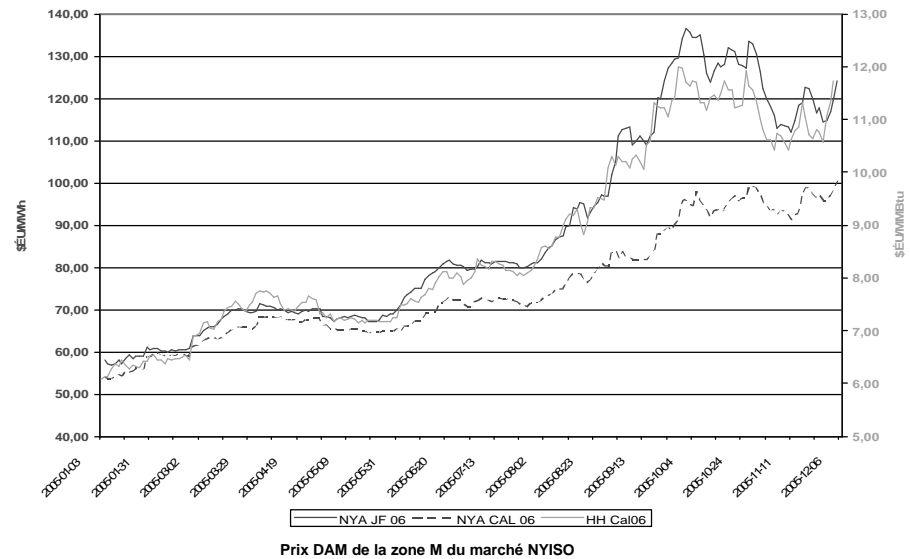
#### **F) Electricity market to establish a cost signal**

- If unable to use the cost signal in the contracts to identify the responsibility of each customer class, an alternative is to turn to the electricity market
- It would be necessary to refer to Quebec's neighbouring markets
- This does not necessarily correspond to Quebec's reality
- Short-term needs will become much less predominant during the coming years
- Questionable to establish an allocation method on the basis of the short-term market in our context

### 3.3 Reflection of causality links

#### G) Evolution of the short-term market context in 2005

Upward pressure due to hurricanes, which have accentuated upward forward price trends started at the beginning of summer with the increase in fuel prices



### ***3.3 Reflection of causality links***

#### **H) Marginal costs to establish a cost signal**

- If unable to find a reference in the electricity market, there are marginal costs
- HQD has not deeply examined the allocation method of supply costs based on the marginal costs
- The marginal cost method has not frequently been used in industry
- The marginal cost method would normally apply to all of the supply to then adjust these costs to the total costs of supply
- The marginal cost method would have to be adapted to take into account the heritage pool volume
- This adaptation would be more than a little unusual with a portion of the supply costs allocated on the basis of marginal costs and the other portion, on the basis of average costs

## ***3.4 Confidentiality of Data Related to Contracts***

### **◆ Additional explanations**

- The supply contracts are created in the context of the calls for tender of HQ Distribution – Supply
- The contract data is kept confidential
- Only the Régie, HQ Distribution – Supply and the supplier have the details of the contracts
- The other units of HQ Distribution do not have access to the confidential data
- HQ Production decided to make public the confidential information in its supply contracts with HQ Distribution
- The information provided in this presentation or used by Regulatory Affairs is drawn from publicly available documents and is available on the Régie's website

## 4. Remarks of the Technical Committee Participants

- ◆ HQD presented 26 remarks, as well as additional explanations on the 4 issues related to the application of the hourly method, included in the first part of this report. As such, the remarks of the participants are in response to those of HQD, identified from A1 to E4. The comments filed in writing are presented in an appendix and form an integral part of the report. The following comments represent a summary of this appendix.

HQD.....	p.48	GRAME.....	p.82
OC.....	p.53	RNCREQ.....	p.84
AQCIE / CIFQ.....	p.68	UMQ.....	p.85
CORPIQ.....	p.74	ROEE.....	p.87
ACEF de Québec.....	p.75	UC.....	p.88
FCEI.....	p.78	SE / AQLPA.....	p.92

- ◆ Moreover, HQD does not present comments on the participants' remarks, with which HQD disagrees. HQD will debate these opinions, if necessary, in the next rate case



## **4. Remarks of the Technical Committee Participants – HQD**

### **A) Establishment of the post-heritage consumption profiles and their anticipated evolution**

- A1: On the basis of the August 2005 forecast, the long-term evolution of HQD's sales should not significantly modify its consumption profile (p. 22)
- A2: The individual growth of the customer classes is not a factor that significantly influences HQD's profile (p. 23)
- A3: Heritage pool consumption (variable) proportional to that of HQD (as reflected in the Government decrees) does not have a significant impact with respect to the fixed heritage pool consumption given the forecast evolution of sales (page 42)
- A4: Decree 1277 must be taken into account with the hourly cost method based on the supply management
- A5: The Decree curve has a bias with respect to the total profile and this bias decreases progressively as needs increase without being completely eliminated (p. 25)
- A6: This bias is transposed to all the customer classes and the customer classes are not affected uniformly. Their post-heritage profiles, which are different from their usual profiles gradually correct themselves – Domestic: 2007, Small Power: 2007 to 2014, Medium Power: 2022, Large power: >2022 (p. 26)
- A7: The post-heritage capacity needs will eventually be more in proportion with those of HQD's total profile after year 2014 (p 27)

## **4. Remarks of the Technical Committee Participants – HQD**

### **B) Establishment of the hourly costs from the characteristics of contracts resulting from calls for tender**

- B1: The supply contracts are not written to reflect an hourly price signal (distinction between power and energy only – pp. 32 and 33)
- B2: Characteristics of the hourly cost method:
  - Weak peak/off-peak price signal given the predominance of the long-term base contract. Unless a sharing of each of the contracts is established by customer class, the average unit cost by contract and the average weighted cost for each hour have the effect of diluting the cost signal between the peak and off-peak period and between the low LF customers and the high LF customers (pp. 34, 35 and 36)
  - No classification of the contract costs by power/energy from the characteristics of the post-heritage electricity (p.35)
- B3: The hourly profile is more precise than the LF to establish responsibility of consumption for each of the customer classes. However, the LF used in the global treatment establishes a cost signal (P/E) for post-heritage electricity, which the hourly treatment does not do
- B4: A cost signal could be calculated based on the cost of power provided in certain contracts (\$80 to \$110 /kW/year) rather than on HQD's (p. 41)

## **4. Remarks of the Technical Committee Participants – HQD)**

### **C) Reflection of the causality links**

- C1: The complementarity of all of the contracts meets HQD's overall needs at a given moment. Each of the contracts does not meet the overall needs in a proportional manner and the contracts do not meet, individually or together, the specific needs of a customer class
- C2: The post-heritage contract components do not allow a reflection of a cost signal that could be adapted on an hourly basis (pp. 32 and 33)
- C3: The short-term market around Quebec does not constitute a reference for the establishment of this cost signal (p. 43)
- C4: To make the hourly cost method more compliant with the traditional cost allocation methods in the Quebec context, it is necessary to include a (P/E) cost signal with the costs of the supply contracts
- C5: To reflect an average unit cost per contract uniquely on the basis of a billing criterion would be:
  - Possible if HQD did not have a peak period, which is not the situation in Quebec
  - Equivalent to saying indirectly that two different consumption profiles could have the same cost, which puts into question the principle of causality, which is generally respected in cost allocation
  - Inconsequential given that the transmission costs are allocated with a different method than the billing criterion

## **4. Remarks of the Technical Committee Participants – HQD**

### **D) Confidentiality of data related to the contracts**

- D1: Only HQ Production contracts are currently accessible
- D2: Barring any changes, the Régie has ruled on the confidentiality of the supply contracts
- D3: The legal aspect of the confidentiality of the supply contracts exceeds the mandate of the technical committee and it is up to the respective lawyers for the participating groups to put forth their opinions in this respect
- D4: The confidentiality of the supply contracts may have constituted an obstacle to the potential improvement of the hourly cost allocation method. However, even with the disclosure of the of the HQ Production supply contracts, one must note that the allocation method could be modified in order to reflect a cost signal in power and energy only
- D5: The evaluation of the portfolio of supply contracts by an independent expert raises transparency issues
- D6: HQD would not even be able to calculate the allocation of costs for the purposes of the rate cases without relying on an expert each time and the intervenors would not have any more information

## **4. Remarks of the Technical Committee Participants – HQD**

### **E) In general**

- E1: The hourly cost method, compliant with the Regie's requirements, raises certain concerns with respect to cost allocation
  - The Decree 1277 curve, that cannot be ignored with a treatment based on hourly management of supply, includes a bias
  - The post-heritage consumption characteristics of the customer classes are not representative of their normal short-term profiles
  - The P/E cost signal, which weakens rapidly, cannot adequately reflect the cost causality by customer class
- E2: Access to confidential data will not fix the situation. The contracts that are not confidential do not have the information that will allow for the improvement of the cost signal on an hourly basis
- E3: Maintaining the global treatment would allow, at least in the short-term, the time for the profiles to partly correct themselves. Moreover, the global treatment gives a cost signal to the post-heritage electricity on the basis of the LF of HQD's total profile, which is stronger than that calculated with a cost of power for post-heritage electricity between \$80 and \$110 \$/kW/year
- E4: The use of the Distributor's load factor to determine a cost signal for power and energy for the post-heritage electricity, is an appropriate equivalent, which is suitable and equitable, while ensuring a stability over time and avoiding the biases associated with Decree 1277-2001 and its hourly treatment