

**RÉGIE DE L'ÉNERGIE**

**HYDRO-QUÉBEC DISTRIBUTION'S APPLICATION  
FOR APPROVAL OF THE PROPOSED  
2008-2017 SUPPLY PLAN  
PHASE 1**

**REQUEST FOR APPROVAL OF TWO SUPPLY  
AGREEMENTS WITH HQP**

**R-3648-2007**

**EVIDENCE OF  
OPTION CONSOMMATEURS**

**PREPARED BY  
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## **1. CONTEXT AND PURPOSE OF EVIDENCE**

On November 1<sup>st</sup> 2007, HQD filed an Application with regards to the approval of its 2008-2017 Supply Plan.<sup>1</sup>

On December 7<sup>th</sup> 2007, the Régie issued decision D-2007-134 which approved the Agreement signed between HQD and TCE with respect to the temporary suspension of power generation from TCE's Bécancour plant.<sup>2</sup>

On March 25<sup>th</sup> 2008, nearly a week after interested parties filed their evidence pertaining to HQD's 2008-2017 Supply Plan Review, HQD amended its original Application.

In addition to its original request for the approval of its Supply Plan, HQD now requests the approval of two agreements (*Conventions*) signed with HQP that would allow for some energy from both 350 MW (base) and 250 MW (cyclable) contracts approved in 2003 to be deferred beyond 2012.<sup>3</sup> The purpose of the Agreements is to offer more flexible supply resources to HQD in balancing load requirements in the context of increased surpluses in the short term (2008-2011) and additional energy requirements in the long term (2012-2017).

On April 1<sup>st</sup> 2008, the Régie issued procedural order D-2008-046 with regards to HQD's amended Application. In its decision, the Régie revised the calendar first issued in procedural order D-2007-126, which initiated the public review of the current Supply Plan, so that a first phase would examine the Agreements signed with HQP. The Régie specified that the Supply Plan Review would resume after Phase 1 and postponed to late June the Review's hearing initially set for the end of April 2008.

In procedural order D-2008-046 (p. 4), the Régie also indicated that the first phase would examine the Agreements and the following related topics: the updated forecast; the underlying revised supply strategy; and risk management issues.

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<sup>1</sup> R-3648-2007.

<sup>2</sup> R-3649-2007, December 7, 2007.

<sup>3</sup> Amended Application, March 25, 2008, paragraphs 10, 18, 22 and 23.

The purpose of this evidence is to assess HQD's new sales forecast and additional supply requirements in light of its February 2008 Outlook in order to validate whether or not the Agreements should be approved by the Régie. The evidence first looks at the updated sales forecast and additional supply requirements and then turns to supply strategies. Our recommendations conclude the evidence.

## **2. SALES AND LOAD FORECASTS**

In exhibit HQD-1, document 5 which provides a rationale for signing up the Agreements with HQP, HQD stresses two significant changes from its November 2007<sup>4</sup> sales forecast that warrant the approval of the Agreements.

The first pertains to HQD's February 2008 Outlook (*Aperçu*). HQD now expects lower sales over the planning horizon than first anticipated in the November 2007 forecast.<sup>5</sup>

The second one recognizes, for planning purposes, the recent agreement signed between the Québec government and Alcoa regarding electric supplies, including 325 MW of new capacity,<sup>6</sup> and the government's intention to commit another 500 MW to the aluminum producer.<sup>7</sup>

HQD indicates that the bulk of Alcoa's new committed and planned supply would fill a 1 000 MW allowance set aside for large power industrial developments.<sup>8</sup>

The impact of the February 2008 Outlook is discussed in section 2.1 and large power developments are discussed in section 2.2 below.

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<sup>4</sup> For the purpose of this evidence, 'November 2007' refers to sales forecast underpinning HQD's original evidence (ie, HQD-1, doc. 1 and doc. 2). The November 2007 forecast is based on the August 2007 forecast, with some adjustments for 2008. See HQD-1, doc. 1, p. 7, lines 1-4.

<sup>5</sup> HQD-1, doc. 5, p. 8, lines 4-15.

<sup>6</sup> HQD-4, doc. 7, p. 4, Table R-1.1.

<sup>7</sup> HQD-1, doc. 5, p. 8, lines 16-24.

<sup>8</sup> HQD-1, doc. 5, p. 4, lines 12-23.

## 2.1 Sales Forecast

Sales forecast underpinning HQD's 2008-2017 Supply Plan (November 2007) calls for electricity sales to customers to increase from 170.9 TWh in 2008 to 186.9 TWh in 2017 which, in turn, translate into supply requirements of 183.8 TWh in 2008 and of 200.8 TWh in 2017.<sup>9</sup>

Contrasted with current and planned resources, HQD's November 2007 load requirement indicates noticeable surpluses in the first two years (2008-2009) and a relatively balanced supply beyond 2010.<sup>10</sup>

HQD's amended Application now suggest that the load requirement for its 2008-2017 Supply Plan points towards surpluses for the first four years (2008-2011) and increasing additional energy requirements after 2012.<sup>11</sup> Table 1 below contrast HQD's November 2007 load forecast with its latest Outlook.

**TABLE 1**  
**COMPARISON OF ENERGY REQUIREMENTS (TWH)**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Energy Requirements</b>										
Original Evidence	183.8	186.7	190.2	191.5	193.8	194.9	196.3	197.7	199.8	200.8
February Outlook	182.6	184.9	187.7	188.8	193.3	196.6	198.3	200.1	202.5	203.6
<i>Difference</i>	<i>-1.2</i>	<i>-1.8</i>	<i>-2.5</i>	<i>-2.7</i>	<i>-0.5</i>	<i>1.7</i>	<i>2.0</i>	<i>2.4</i>	<i>2.7</i>	<i>2.8</i>
<b>Current &amp; Planned Supplies</b>										
Original Evidence	189.5	189.7	190.6	191.6	193.7	195.4	196.6	197.8	198.9	198.9
February Outlook	185.5	185.6	190.6	191.6	193.6	195.4	196.6	197.8	198.9	198.9
<i>Difference</i>	<i>-4.0</i>	<i>-4.1</i>	<i>0.0</i>	<i>0.0</i>	<i>-0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
<b>Additional Energy Required (Surpluses)</b>										
Original Evidence	-5.6	-2.9	-0.3	-0.1	0.2	-0.5	-0.3	0.0	0.9	2.0
February Outlook	-2.9	-0.7	-2.9	-2.8	-0.3	1.2	1.7	2.3	3.6	4.7

Sources:

Original Evidence: HQD-1, doc. 2, p. 36, Table 5.1

February Outlook: HQD-1, doc. 5, p. 9, Table 1

<sup>9</sup> HQD-1, doc. 1, p. 14, Table 2.3.

<sup>10</sup> HQD-1, doc. 1, p. 36, Table 5.1.

<sup>11</sup> HQD-1, doc. 5, p. 9, Table 1.

In a response to a information request by the Régie,<sup>12</sup> HQD indicates that it is unable to provide new sales forecast per customer classes over the planning horizon (as per Table 2.3 of HQD-1, doc. 1) since Outlooks consist in fine-tuning the forecast without changing core variables. In other words, inputs remain unchanged while output results are ‘tweaked’ to reflect latest sales results and the broader context that impacts overall requirements.

With respect to changes in anticipated sales, HQD now expects a net impact of -1.4 TWh in 2008 which results from lower sales due to reduced industrial output and warmer weather (-1.8 TWh) but slightly offset by stronger sales to other customer classes (+0.4 TWh).

As for 2009, the net impact is expected at -2.5 TWh and is explained by industrial output which is reduced further (from 1 TWh to 2.9 TWh) and stronger sales to other customer classes (+0.4 TWh).<sup>13</sup>

Beyond 2009 and for the remaining planning horizon, HQD estimates the impact at -2.2 TWh when compared to the November 2007 forecast. HQD indicates that circumstances peculiar to 2008 and 2009 won’t uphold through 2010 and do not warrant any further reduction in sales.<sup>14</sup>

In an answer to an information request by OC,<sup>15</sup> HQD indicates that significant changes in sales forecast between the two forecasts (ie, August vs. November) originate from the Domestic & Agriculture sector as well as from the Industrial Large Power sector. For the former sector, high fuel prices and stronger household formation drove sales higher while for the latter sector stronger than anticipated difficulties for the pulp and paper industry brought sales down but revised sales forecast to Alcan and other large power industries also drove sales down but to a lesser extent.

It is worth noting that HQD’s November 2007 sales forecast did consider some temporary shut downs and closures in the industrial sector but, as the February Outlook tends to confirm, difficulties in the pulp and paper industry are more acute than anticipated.<sup>16</sup> Bowater’s Belgo, which accounts for 1 TWh, is one such example.<sup>17</sup>

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<sup>12</sup> HQD-4, doc. 1, p. 13-14, Response 8.1.

<sup>13</sup> HQD-4, doc. 4, p. 16, Response 6.2.

<sup>14</sup> HQD-4, doc. 4, p. 17, Response 6.6.

<sup>15</sup> HQD-3, doc. 7, p. 4, Response 1.2.

<sup>16</sup> See Table R6-2 in HQD-3, doc. 7, p. 10, Response 6.2.

<sup>17</sup> R-3644-2007, Transcripts, vol. 1, 4 December 2007, p. 28 and R-3648-2007, HQD-3, doc. 12, p. 12-13, Response 5.2.

Overall, changes in sales and energy requirements from the November 2007 forecast to the February 2008 Outlook appear consistent with changes in sales observed for previous forecasts<sup>18</sup> which, in turn, tends to validate that HQD's revised sales forecast is reasonable.

## **2.2 Additional supply requirements**

HQD's new capacity requirements reflect the impact of lower sales over the planning horizon as per the February Outlook. It also includes adjustments to more accurately plan for an allowance set aside for large power developments. Finally, supply requirements also mirror HQD most recent supply strategy (ie, the suspension of deliveries from TCE's Bécancour generating station).

With regards to large power developments, HQD indicates that its November 2007 forecast does include a provision for large power developments but that it anticipated a slower deployment (ie, recent announcement regarding Alcoa).<sup>19</sup>

About half of a 1 000 MW allowance set aside by the Quebec government in its Energy Strategy<sup>20</sup> is now committed to either Alcan (225 MW)<sup>21</sup> or Alcoa (310 MW).<sup>22</sup> Even though Alcoa's new electric supply has just been announced, it is reasonable to incorporate that information in the planning process.

As for the remaining part of the allowance, it is now fully included in HQD's load requirements. HQD indicates that by doing so, resource planning is coherent with the Energy Strategy.<sup>23</sup> HQD specifies that the outstanding 500 MW could serve Alcoa's Deschambault smelter expansion or any other additional large power load.<sup>24</sup>

As of now however, HQD cannot yet rely on convincing information that would help in planning the timeline for the remaining part of the allowance. It can only trust the government's intention to commit the outstanding 500 MW to large power developments by 2015.

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<sup>18</sup> See explanations and tables in Responses 1.1 and 1.2 of HQD-3, doc 7.

<sup>19</sup> HQD-4, doc. 1, p. 11-12, Response 6.2. See also HQD-4, doc. 9, p. 4-5, Responses 2.2.

<sup>20</sup> HQD-4, doc. 1, p. 11, Response 6.1.

<sup>21</sup> HQD-1, doc. 1, p. 13, lines 8-16.

<sup>22</sup> HQD-1, doc. 5, p. 4, lines 12-17 and HQD-4, doc. 7, p. 4 Table R-1.1.

<sup>23</sup> HQD-1, doc. 5, p. 8 lines 16-22.

<sup>24</sup> HQD-4, doc. 1, p. 12, 6.3 and HQD-4, doc. 7, p. 5, Response 2.1.

Finally, as mentioned above, HQD's supply requirements also takes into account the now approved 2008 suspension of deliveries from TCE's Bécancour generating station and plans for a consecutive shut down in 2009.

Table 2 below contrasts capacity requirements from the November 2007 forecast with the latest changes to sales and supply resources.

**TABLE 2**  
**COMPARISON OF CAPACITY REQUIREMENTS (MW)**

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
<b>Capacity Requirements with Reserve</b>									
Original Evidence	39,924	40,757	41,212	41,534	41,848	42,122	42,394	42,602	42,936
February Outlook	39,681	40,589	41,034	41,337	42,237	42,537	42,855	43,119	43,468
<i>Difference</i>	-243	-168	-178	-197	389	415	461	517	532
<b>Current &amp; Planned Supplies</b>									
Original Evidence	39,795	39,900	40,025	40,301	40,475	40,610	40,745	40,880	40,880
February Outlook	39,248	39,900	40,025	40,301	40,475	40,610	40,745	40,880	40,880
<i>Difference</i>	-547	0	0	0	0	0	0	0	0
<b>Additional Capacity Requirements</b>									
Original Evidence	130	860	1,190	1,230	1,370	1,510	1,650	1,720	2,060
February Outlook	433	689	1,009	1,036	1,762	1,927	2,110	2,239	2,588
<i>Difference</i>	303	-171	-181	-194	392	417	460	519	528
<b>Additional Capacity with Markets</b>									
Original Evidence	0	360	690	730	870	1,010	1,150	1,220	1,560
February Outlook	3	189	509	536	1,262	1,427	1,610	1,739	2,088
<i>Difference</i>	3	-171	-181	-194	392	417	460	519	528

Sources:

Original Evidence: HQD-1, doc. 1, p. 38, Table 5.2

February Outlook: HQd-4, doc. 7, p. 4, Table R-1.1

It must be noted that the impact of the February Outlook on capacity requirements appears inconsistent with the energy requirements as per the same Outlook.<sup>25</sup> As mentioned above, HQD now expects lower sales to translate into a 2.2 TWh reduction in energy requirements beyond 2010, which, if derived similarly to other items, would suggest capacity reductions of about 250 MW beyond 2010.<sup>26</sup> However, the same line item for the latest capacity assessment is only reduced by 110 MW.

<sup>25</sup> See HQD-1, doc. 5, p. 9, Table 1 for energy and HQD-4, doc. 7, p. 4, Table R-1.1 for capacity.

<sup>26</sup> 250 MW = 2.2 TWh / 8 760 hours.

If this inconsistency is only a misprint, additional capacity requirements beyond 2010 would likely increase by 140 MW or so. This, in turn, would not fundamentally alter the overall load assessment provided by HQD.

### **2.3 Conclusions**

Overall, HQD's latest load forecast and supply balance suggest a lasting reduction in sales to industrial customers which would lead to energy surpluses over the entire planning horizon if not offset by large power developments.

The issue at stake is not really if the remaining part of the allowance will be serving large power loads or when exactly that or those loads would have to be serviced but rather whenever the government commits 300 MW to 500 MW of new electricity to any large power development after 2010, HQD's energy balance, based on its medium scenario, will turn from firm surpluses to likely deficits and will require additional baseload resources.

For illustrative purposes Table 3 below contrasts different load requirement scenarios based on the February 2008 Outlook.

**TABLE 3**  
**ILLUSTRATIVE SCENARIOS (TWH)**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Additional Energy Required (Surpluses)</b>										
Original Evidence	-5.6	-2.9	-0.3	-0.1	0.2	-0.5	-0.3	0.0	0.9	2.0
February Outlook	-2.9	-0.7	-2.9	-2.8	-0.3	1.2	1.7	2.3	3.6	4.7
February Outlook without 500 MW (4.5 TWh)	-2.9	-0.7	-2.9	-2.8	-2.6	-3.3	-2.8	-2.2	-0.9	0.2
February Outlook +300 MW (2.6 TWh) in 2010	-2.9	-0.7	-0.3	-0.2	0.0	-0.7	-0.2	0.4	1.7	2.8
February Outlook +500 MW (4.5 TWh) in 2010	-2.9	-0.7	1.6	1.7	1.9	1.2	1.7	2.3	3.6	4.7

### 3. SUPPLY STRATEGIES

As demonstrated above, HQD likely faces energy surpluses in the near term (2008-2011) and might equally do so in the longer term (2012-2017) if the outstanding allowance for large power developments is only partially allocated during that period or if a weaker scenario materialises. Nonetheless, the likelihood of excess supplies in the short term appears more robust than in the longer term considering that the possibility exists for significant additional requirements beyond 2012.

#### 3.1 Possible Strategies

Accordingly, likely strategies would be to either limit or resell excess supplies in the short term and planning for resources in the long run.

The resell option would balance HQD's load requirement and could hypothetically reduce supply costs in the short term but would do little to address future additional requirements.

Shelving off any one contracted resource would partially balance HQD's load requirement in the short run but again, would not address possible additional requirements. Furthermore, this option would not address stronger than expected load growth — it might even make it worse if HQD has to substitute long

term contracted energy with higher-priced short term energy — and does not provide much flexibility: its either up and running or not at all.

In contrast, the Agreements (discussed below), akin to a moduable/storage product, introduce much needed flexibility to HQD’s current supply mix as they provide for both the short term excess supply situation and for possible future additional requirements.

Table 4 below contrasts the available options against supply needs.

**TABLE 4**  
**COMPARISON OF SUPPLY OPTIONS**

	<u>Resell</u>	<u>Suspension</u>	<u>Agreements</u>
Balance short term load requirements	Yes	Yes, to some extent	Yes
Meet <u>higher</u> than expected growth	No, would only reduce surpluses	No, could lead to higher cost	Yes, beyond 2012
Meet <u>lower</u> than expected growth	Yes, but would increase surpluses	Yes, to some extent	Yes, to some extent
Net cost reduction	Short term only, uncertain outcome	No	Yes
Address large power developments	No	No	Yes, to some extent

### **3.2 The Agreements**

After reviewing the Agreements *per se* and responses to information requests by the Régie and other parties, few comments are necessary.

First, it must be noted that the Agreements do not modify the original contracts signed with HQP. HQD will continue to the benefit from those contracts and, if approval is granted, HQD will also benefit from the flexibility that the Agreements bring on.

Second, the terms of the Agreements offer reasonable planning opportunity to HQD throughout the period (2008-2020). During the first four years (2008-2011), HQD must generally advise HQP of deferred deliveries a month ahead of the period of three months that follows.<sup>27</sup>

For the January to March period, HQD must give notice to HQP three months ahead. HQD indicates that the longer notice period is presumably link to HQP's resource planning.<sup>28</sup> Considering that HQD is not, at this stage, planning for deferring any energy in the winter months of January and February for 2009, 2010 and 2011, the longer delay does not appear problematic.<sup>29</sup>

Moreover, in a response to an information request by AQCIE-CIFQ, HQD indicates that it could rely on HQP's 600 MW only if deliveries remain at contracted levels.<sup>30</sup> Given HQD's current capacity balance, it seems unlikely that HQD would defer deliveries during those months.

As for the 'call-back' period (2012-2020), the fact that HQD must give prior notice to HQP no later than September 15<sup>th</sup> of the previous year<sup>31</sup> is consistent with current planning practices (ie, August forecast for either Supply Plans or Updates).<sup>32</sup>

Third, the terms of the Agreements also provide for convenient programming flexibility throughout the period. HQD can defer deliveries up to the contracted energy of each contract by blocks of 50 MW and can vary each and every month.<sup>33</sup> During the call-back period, deferred deliveries are to be returned to HQD as base load by blocks of 50 MW.<sup>34</sup>

Fourth, with regards to costs, the terms of the Agreement set a reasonable price for the additional energy to be called back by HQD and there are no financial penalties or damages for reducing deliveries originally contracted for between 2008 and 2011. Nor are there any fees associated with the storage of the energy for the duration of the Agreements.

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<sup>27</sup> HQD-1, doc. 5, p. 6.

<sup>28</sup> HQD-4, doc. 1, p. 4, Response 1.1.

<sup>29</sup> HQD-4, doc. 1, p. 10, Response 5.1.

<sup>30</sup> HQD-4, doc. 10, p. 8, Response 5.1 and HQD-4, doc. 1, p. 10, Response 5.2.

<sup>31</sup> HQD-1, doc. 5, p. 7.

<sup>32</sup> HQD-4, doc. 4, p. 3, Response 1.1.

<sup>33</sup> HQD-1, doc. 5, p. 6. See also HQD-4, doc. 2, p. 7, Response 8b.

<sup>34</sup> HQD-4, doc. 1, p. 5, Response 2.1. See also p. 6, Response 3.2.

#### **4. CONCLUSION**

HQD's latest medium scenario forecast indicates energy surpluses in the near term (2008-2011) and likely shortfalls beyond 2012. Likely strategies to balance load requirements over the planning horizon are limited to reselling excess supplies, shelving one or many contracted resources or storing excesses for later use (ie, the Agreements). As illustrated above in Table 4, only the modifiable/storage option allows for flexibility in managing diverse and uncertain outcomes.

The Agreements would also constitute a reasonable and cautious strategy in the current situation. Storing excess supplies for later use at a known price is reasonable considering that future energy prices are likely to be at least as expensive as those set in both contracts signed with HQP. It is also cautious to store surpluses in the wake of significant energy requirements from large power industrial developments. The stored energy might also serve in balancing any supply shortfall from planned resources caused by either construction delays or disappointing results.

The downside however, is that if sales were to decline further for the Industrial Large Power sector or if the 1 000 MW allowance is not fully allocated over the planning horizon, it might be tougher for HQD to utilise the stored energy as its requirements would not necessarily require to base load resources.

**In conclusion, we recommend that HQD's request with respect to the Agreements be granted by the Régie.**