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August 16, 2010

Ms. Erica M. Hamilton  
Commission Secretary  
British Columbia Utilities Commission  
Sixth Floor – 900 Howe Street  
Vancouver, BC V6Z 2N3

Dear Ms. Hamilton:

**RE: Project No. 3698592  
British Columbia Utilities Commission (BCUC)  
British Columbia Hydro and Power Authority (BC Hydro)  
Fiscal 2011 Revenue Requirement Application (F11 RRA)**

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BC Hydro writes to submit errata in the above proceeding, being a revised version of the F2010 Report on Demand-Side Management Activities (**F2010 DSM Report**) filed as Appendix 8 in the Evidentiary Update on July 9, 2010.

In preparing responses to the Information Requests (**IRs**) for Round 2 of the F11 RRA, it has come to BC Hydro's attention that an error occurred in the calculation of incremental energy savings for three programs. Those programs were Power Smart Partners - Commercial Sector, Power Smart Partners - Distribution, and Power Smart Partners - Transmission.

The correction of the error affects the F2010 incremental energy savings, but not the F2010 cumulative energy savings. The cost-effectiveness of the DSM portfolio portrayed in Tables 4 and 5 of the F2010 DSM Report has not changed. Nevertheless, BC Hydro wants to ensure that the most accurate information is provided. Accordingly, attached as Exhibit B-8-1, is the revised F2010 DSM Report, with revised Tables 1, 3, 4 and 5, and corresponding variance explanations. Changes to the tables are highlighted and the text shows tracked changes. The responses to Round 2 IRs have utilized this updated information.

August 16, 2010  
Ms. Erica M. Hamilton  
Commission Secretary  
British Columbia Utilities Commission  
Fiscal 2011 Revenue Requirement Application (F11 RRA)

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For further information, please contact the undersigned.

Yours sincerely,



Joanna Sofield  
Chief Regulatory Officer

ab/ma

Enclosure (1)

c. BCUC Project No. 3698592 (F11 RRA) Registered Intervener Distribution List.



# **Report on Demand-Side Management Activities for Fiscal 2010**

**June 25, 2010**

**(Revised August 16, 2010)**

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## **1. Introduction**

This BC Hydro annual report to the British Columbia Utilities Commission (**BCUC**) on demand side management (**DSM**) activities responds to Directive 69 from the BCUC decision on BC Hydro's F2005/F2006 Revenue Requirements Application (**F05/F06 RRA**), Directive 16 from the BCUC decision on BC Hydro's 2006 Integrated Electricity Plan and Long Term Acquisition Plan (2006 IEP/LTAP) and Directives 36 and 38 from the BCUC decision on BC Hydro's 2008 LTAP. The report provides information on DSM expenditures, electricity savings, plan performance and mitigation measures for the 2010 fiscal year (**F2010**), for the twelve months ending March 31, 2010.

Directive 69 directed BC Hydro "to provide information to the Commission for on-going review of Power Smart performance through:

- Executive Summaries of milestone evaluation reports and full final evaluation reports for each program.
- Semi-annual reports on DSM activities which, amongst others, will include:
  - detailed breakdown of OMA expenses related to support activities carried out within the Power Smart group and in other departments that support Power Smart organization;
  - detailed description of the functions of portfolio level costs and how these costs are allocated to programs;
  - summaries of the overall performance of Power Smart with reference to program objectives; and
  - variances of fiscal year budgeted and actual deferred capital expenditures and explanation of variances."

Directive 16 directed BC Hydro "to continue to file reports on DSM performance as described in Directive 69 included in Order No. G-96-04 and to file its Semi Annual DSM Reports in the same format as the June 2005 Report with the following enhancements:

Provide annual and cumulative totals since program inception:

- (1) Express these values on a per unit basis; and
- (2) Provide the benefit to cost ratios for the three DSM tests."

Directive 36 directed BC Hydro to switch from semi-annual to annual DSM performance reports while Directive 38 directed BC Hydro to include in these reports "metrics for each initiative, achievements in relation to milestones, and description of past or planned mitigation measures where warranted. These mitigation measures should include shifting program resources and alternative supply options for each program. Ongoing DSM performance reporting should demonstrate how BC Hydro is continuously pursuing DSM and that specific programs are cost-effective."

BC Hydro is filing evaluation reports as a separate package. This report addresses the balance of Directives 69 and 16, as well as Directives 36 and 38.

## 2. Expenditures and Electricity Savings for Fiscal 2010

BC Hydro's DSM expenditures<sup>1</sup> in Fiscal 2010 totalled \$134.8 million while incremental DSM electricity savings totalled ~~890 769~~ GWh/year. This was \$27 million and ~~80 200~~ GWh/year below the DSM Plan in BC Hydro's 2008 LTAP ~~but or~~ 27 93 GWh/year ~~above below~~ the DSM Plan in the Evidentiary Update of the 2008 LTAP.<sup>2</sup> As indicated in Table 3, the cumulative energy savings for F2010 are 103 per cent of BC Hydro's DSM Plan from the 2008 LTAP, or 47 GWh/year above planned savings.

Table 1 presents planned and actual DSM expenditures and incremental electricity savings in F2010.

<sup>1</sup> Comprising all DSM-related deferred operating and specific capital expenditures and operating expenditures that are relevant for DSM cost-effectiveness, such as those related to rate structures, which aligns with the types of DSM expenditures included in BC Hydro's DSM plans. Other DSM operating expenditures are presented in Table 6 of this report.

<sup>2</sup> Refer to Section 2.4.2 of Evidentiary Update (Exhibit B-10 filed December 22, 2008) for an explanation of the difference to DSM savings between the 2008 LTAP and the Evidentiary Update.

Table 1 Expenditures and Incremental Electricity Savings for Fiscal 2010 (Revised)

	Expenditures <sup>1</sup>				Incremental Electricity Savings			
	Plan <sup>2</sup>	Actual <sup>3</sup>	Variance		Plan <sup>2</sup>	Actual <sup>4</sup>	Variance	
	\$ 000	\$ 000	\$ 000	%	GWh/yr	GWh/yr	GWh/yr	%
<b>Codes and Standards<sup>5</sup></b>								
Residential	-	-	-	-	141	13	(128)	(91%)
Commercial	-	-	-	-	0.5	29	28	6,322%
Industrial	-	-	-	-	-	-	-	n/a
<b>Total Codes and Standards</b>	-	-	-	-	141	42	(99)	(70%)
<b>Rate Structures</b>								
Residential	1,990	1,329	(661)	(33%)	233	249	17	7%
Commercial	3,350	3,543	193	6%	118	0	(118)	(100%)
Industrial	140	1,126	986	704%	80 <sup>6</sup>	0 <sup>6</sup>	(80)	(100%)
<b>Total Rate Structures</b>	5,480	5,998	518	9%	431	249	(181)	(42%)
<b>Programs</b>								
<b>Residential Sector</b>								
Behaviour	21,000	2,157	(18,843)	(90%)	22	6	(15)	(71%)
Voltage Optimization	4,520	2,356	(2,164)	(48%)	17	7	(10)	(61%)
Lighting	2,560	2,627	67	3%	6	19	13	206%
Sustainable Community	1,100	1,410	310	28%	0	0	-	n/a
Refrigerator Buy-Back	3,840	4,737	897	23%	16	19	3	22%
Low Income	6,140	2,597	(3,543)	(58%)	6	3	(3)	(53%)
New Home	1,520	1,436	(84)	(6%)	6	3	(3)	(45%)
Appliances and Electronics	7,340	8,463	1,123	15%	20	13	(7)	(36%)
Renovation Rebate	1,640	2,040	400	24%	4	8	4	122%
Load Displacement	170	-	(170)	(100%)	0	0	-	-
<u>Sector Enabling Activities</u>	<u>1,390</u>	<u>2,058</u>	<u>668</u>	<u>48%</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<b>Sector Total</b>	<b>51,220</b>	<b>29,878</b>	<b>(21,342)</b>	<b>(42%)</b>	<b>96</b>	<b>78</b>	<b>(18)</b>	<b>(19%)</b>
<b>Commercial Sector</b>								
Power Smart Partners	15,100	22,737	7,637	51%	30	44	14	45%
Product Incentive	13,990	14,536	546	4%	58	92	34	58%
High Performance Buildings	5,600	5,265	(335)	(6%)	10	26	16	162%
Voltage Optimization	1,500	785	(715)	(48%)	5	2	(3)	(62%)
Sustainable Community	280	352	72	26%	0	0	-	n/a
Load Displacement	280	-	(280)	(100%)	0	0	-	-
<u>Sector Enabling Activities</u>	<u>1,630</u>	<u>1,280</u>	<u>(350)</u>	<u>(21%)</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<b>Sector Total</b>	<b>38,380</b>	<b>44,957</b>	<b>6,577</b>	<b>17%</b>	<b>104</b>	<b>164</b>	<b>60</b>	<b>58%</b>
<b>Industrial Sector</b>								
Mechanical Pulping <sup>7</sup>	-	-	-	-	-	-	-	n/a
Power Smart Partner - Transmission	19,040	8,529	(10,511)	(55%)	165 <sup>8</sup>	183 <sup>8</sup>	19	11%
Power Smart Partner - Distribution	13,640	11,025	(2,615)	(19%)	31	18	(14)	(43%)
New Plant Design	1,870	4,336	2,466	132%	1	35	33	2,330%
Load Displacement	410	-	(410)	(100%)	0	0	-	-
<u>Sector Enabling Activities</u>	<u>1,120</u>	<u>1,235</u>	<u>115</u>	<u>10%</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<b>Sector Total</b>	<b>36,080</b>	<b>25,126</b>	<b>(10,954)</b>	<b>(30%)</b>	<b>197</b>	<b>236</b>	<b>38</b>	<b>19%</b>
<b>Total Programs</b>	<b>125,680</b>	<b>99,961</b>	<b>(25,719)</b>	<b>(20%)</b>	<b>397</b>	<b>478</b>	<b>80</b>	<b>20%</b>
<b>Supporting Initiatives</b>								
Public Awareness & Education	8,470	8,367	(103)	(1%)	-	-	-	-
Community Engagement	7,150	7,079	(71)	(1%)	-	-	-	-
Technology Innovation	1,230	1,120	(110)	(9%)	-	-	-	-
Codes & Standards Support	2,260	1,642	(618)	(27%)	-	-	-	-
Information Technology	2,250	1,901	(349)	(16%)	-	-	-	-
Indirect & Portfolio Enabling	9,290	8,724	(566)	(6%)	-	-	-	-
<b>Total Supporting Initiatives</b>	<b>30,650</b>	<b>28,832</b>	<b>(1,818)</b>	<b>(6%)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total DSM</b>	<b>161,810</b>	<b>134,792</b>	<b>(27,018)</b>	<b>(17%)</b>	<b>969</b>	<b>769</b>	<b>(200)</b>	<b>(21%)</b>

Notes:

- 1 Including all DSM-related deferred operating and specific capital expenditures and operating expenditures that are relevant for DSM cost-effectiveness.
- 2 Plan figures are from BC Hydro's 2008 LTAP rather than the Evidentiary Update of the 2008 LTAP because the Update did not include updated figures at the initiative level.
- 3 To align with the DSM Plan activities and expenditures presented in BC Hydro's 2008 LTAP, which cover the years F2008 forward, these figures do not include \$4.5 million in incentive refunds received in F2010 relating to DSM program activity before F2008.
- 4 Reported savings from codes and standards and rate structures are based on planned estimates.
- 5 Expenditures for Codes and Standards Support are reported under Supporting Initiatives.

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- 6 Savings shown are those planned to come from the Industrial sector from the LGS rate. A combined estimate of savings from both the Transmission Service Rate and Power Smart Partner - Transmission program is presented below in the Power Smart Partner - Transmission program line. Upon an evaluation of energy savings from the Transmission Service Rate and Power Smart Partner - Transmission program, BC Hydro will assess reporting separate estimates of savings from each initiative.
- 7 Mechanical Pulping expenditures and savings are included in Power Smart Partner - Transmission.
- 8 Includes estimated electricity savings resulting from the Transmission Service Rate that are based on planned estimates.
9. Numbers are rounded.

The following are explanations for the above variances:

<b>Codes and Standards</b>	
Residential	Electricity savings were below plan primarily because of a delay in the federal government's introduction of a regulation for ceiling fans. The regulation was scheduled by the federal government to take effect in 2008, but is now scheduled to take effect in January 2012 at the earliest. In addition there has been a delay in the federal government's introduction of regulations for set-top boxes and external power supplies. These regulations were scheduled to take effect in September 2009 but are now scheduled to take effect in late 2010 for external power supplies and in 2012 for set-top boxes.
Commercial	Energy savings were above plan because of the enactment of a B.C. regulation on fluorescent ballasts taking effect January 2009. This regulation was not planned by the provincial government in 2007 when the 2008 DSM plan was developed.
Industrial	No new industrial codes and standards savings were planned because no energy efficiency regulations were anticipated to take effect between F2008 and F2010.
<b>Rate Structures</b>	
Residential	Expenditures were below plan because of a smoother transition than anticipated by customers to the Residential Inclining Block ( <b>RIB</b> ) rate and postponement of selected communication activities. Electricity savings were above plan because of differences between the assumed RIB rate structure underlying the planned savings and that approved by the BCUC and between forecast and actual residential load.
Commercial	Expenditures were above plan because of more research, analysis and stakeholder consultation activities than anticipated with respect to restructuring the Large General Service ( <b>LGS</b> ) rate. Electricity savings were below plan because of the deferral of the expected LGS start date from April 2009 to January 2011.
Industrial	Expenditures were above plan for the same reasons noted above in Commercial and also because of necessary but unplanned higher level of work on the Transmission Service Rate, specifically compliance filings and the three year report to the BCUC. Electricity savings were below plan because of the deferral of the assumed LGS start date from April 2009 to January 2011.
<b>Programs</b>	
<b>Residential Sector</b>	
Behaviour	Expenditures and electricity savings were below plan because of a delay in timing of activities enabled by the Smart Metering and Infrastructure ( <b>SMI</b> ) program compared to plan in F2010.

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Voltage Optimization	Expenditures and electricity savings were below plan because of voltage optimization projects taking longer to complete than planned and technical issues, now resolved, that prevented the realization of voltage optimization savings for a period of time.
Lighting	Expenditures were approximately on plan. Electricity savings were above plan because of higher than planned program activity as a result of BC Hydro securing the participation of more retail partners than expected and, in turn higher than expected sales of CFLs. The cost variance is smaller than the savings variance primarily because of the fact that the program drove a higher average number of bulbs sold per package than planned without a corresponding increase to the incentive level per package.
Sustainable Community	Expenditures were above plan because of changes to the program design after more detailed program development, including incentive levels for energy saving measures and more activity in community energy planning to capitalize on local governments' response to the Local Government (Green Communities) Statutes Amendment Act, 2008. No electricity savings were planned until F2011.
Refrigerator Buy-Back	Expenditures and electricity savings were above plan because of higher than forecast program participation in response to a strong, targeted advertising campaign and cross-promotions with other Power Smart programs.
Low Income	Expenditures and electricity savings were below plan because of a delay in launching the audit and retrofit element of the program as a result of privacy issues. These issues have now been resolved and this element is now operational.
New Home	Expenditures were approximately on plan. Electricity savings were below plan because of lower than planned participation of detached homes as a result of the decrease in detached housing starts in F2010.
Appliances and Electronics	Expenditures were above plan because of higher than forecast program participation in the TV portion of the program. Electricity savings were below plan due to the set-top box portion of the program not launching as a result of a lack of vendor support and insufficient specifications for efficient set-top boxes.
Renovation Rebate	Expenditures and energy savings were above plan because of higher than planned program participation as a result of a higher number of audits leading to retrofits than planned. The cost variance is smaller than the savings variance because advertising was curtailed in light of the increase in participation.
Load Displacement	No expenditures were incurred because BC Hydro delayed program development in order to ensure alignment with BC Hydro's supply side offers for distributed generation. No savings were planned.
Sector Enabling Activities	Expenditures were above plan primarily because of more home audits than planned.
<b>Commercial Sector</b>	
Power Smart Partner	Expenditures were above plan because of changes to the program offer and marketing and communication strategy and the launch of new program components as well as higher than planned participation in response to these changes. Electricity savings were above plan because of this increase in participation. The cost variance is currently greater than the savings variance because of a lag between when costs are incurred and savings are achieved.

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Product Incentive	Expenditures were approximately on plan. Electricity savings were above plan because of higher than planned participation in response to changes to the program process and marketing and communication strategy as well as better than planned trade ally support. The cost variance is smaller than the savings variance primarily because of the mix of technologies selected by program participants resulting in lower incentive costs than planned.
High Performance Buildings	Expenditures were approximately on plan. Electricity savings were above plan because of more projects reaching completion than planned. The cost variance is smaller than the savings variance primarily because of the projects selected by program participants resulting in lower incentive costs than planned.
Voltage Optimization	See Residential Sector.
Sustainable Community	See Residential Sector.
Load Displacement	See Residential Sector.
Sector Enabling Activities	Expenditures were below plan because of a delay of selected activities due to resource constraints.
<b>Industrial Sector</b>	
Mechanical Pulping	The program is currently embedded within the Power Smart Partner – Transmission program. Mechanical Pulping costs and savings may be accounted for separately in future years.
Power Smart Partner – Transmission	Expenditures were below plan because of selected customers deferring decisions on energy saving projects as a result of the federal government’s Green Transformation Program, which offered grants to Canadian pulp and paper mills to improve energy efficiency and environmental performance, and lower than planned participation in selected program activities. Electricity savings were above plan because of larger than planned efficiency projects in the mining and oil and gas sectors and more self-generation than planned resulting from a combination of the Transmission Service Rate and program enabling activities.
Power Smart Partner – Distribution	Expenditures and electricity savings were below plan because of longer than expected lag times between the completion of energy studies and the ensuing energy saving projects.
New Plant Design	Expenditures and electricity savings were above plan because of several projects completing earlier than planned. The cost variance is smaller than the savings variance primarily because of projects yielding more energy savings per dollar compared to plan.
Load Displacement	See Residential Sector.
Sector Enabling Activities	Expenditures were above plan because of increased Industrial awareness activities.
<b>Total Programs</b>	Expenditures were below plan largely because of lower than planned costs in the Residential Behaviour and Industrial Power Smart Partner – Transmission programs. Electricity savings were above plan because of higher than planned savings in response to the <del>combination of the Transmission Service Rate and the Power Smart Partners – Transmission-New Plant Design</del> program and <del>to</del> the Product Incentive program.
<b>Supporting Initiatives</b>	
Public Awareness & Education	Expenditures were approximately on plan.
Community Engagement	Expenditures were approximately on plan.
Technology Innovation	Expenditures were approximately on plan.

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Codes and Standards Support	Expenditures were below plan because of greater than planned contributions from co-funders for the development of energy efficiency standards by the Canadian Standards Association and because of the deferral of planned codes and standards evaluation activities to F2011.
Information Technology	Expenditures were below plan because of two projects not proceeding as a result of privacy issues.
Indirect and Portfolio Enabling Activities	Expenditures were approximately on plan.
<b>Total DSM</b>	Expenditures were 17 per cent below plan because of lower than planned costs for programs. <del>Incremental</del> <del>E</del> electricity savings were <del>8</del> <u>21</u> per cent below plan because of lower than expected savings from codes and standards and rate structures. <del>However, a</del> <del>A</del> s noted on page 2, <del>incremental</del> savings were <del>3</del> <u>11</u> per cent <del>above</del> <del>below</del> the DSM Plan in the Evidentiary Update of the 2008 LTAP. <u>On a cumulative basis, F2010 savings were 3 per cent above plan as shown in Table 3.</u>

### 3. Expenditures to Date

BC Hydro's DSM expenditures from F2008 through F2010 totalled \$307.2 million. Table 2 presents DSM expenditures from April 1, 2007 to March 31, 2010.<sup>3</sup>

**Table 2 Expenditures since F2008**

	F2008 <sup>2</sup> (\$ 000)	F2009 (\$ 000)	F2010 (\$ 000)	Total (\$ 000)
<b>Rate Structures</b>				
Residential	1,164	3,688	1,329	6,182
Commercial	44	2,593	3,543	6,180
Industrial	269	610	1,126	2,004
<b>Total Rate Structures</b>	<b>1,477</b>	<b>6,891</b>	<b>5,998</b>	<b>14,366</b>
<b>Programs</b>				
<b>Residential Sector</b>				
Behaviour	-	1,351	2,157	3,508
Voltage Optimization	805 <sup>3</sup>	1,274 <sup>3</sup>	2,356	4,441
Lighting	3,007	2,525	2,627	8,159
Sustainable Community	-	-	1,410	1,410
Refrigerator Buy-Back	4,014	4,950	4,737	13,701
Low Income	113	1,339	2,597	4,049
New Home	1,431	1,519	1,436	4,386
Appliances and Electronics	1,035	5,460	8,463	14,958
Renovation Rebate	549	1,193	2,040	3,782
Load Displacement	-	-	-	-
<u>Sector Enabling Activities</u>	<u>2,229</u>	<u>1,897</u>	<u>2,058</u>	<u>6,184</u>
<b>Sector Total</b>	<b>13,182</b>	<b>21,510</b>	<b>29,878</b>	<b>64,570</b>
<b>Commercial Sector</b>				
Power Smart Partners	10,723	17,726	22,737	51,187
Product Incentive	2,842	7,920	14,536	25,299
High Performance Buildings	2,163	3,721	5,265	11,149
Voltage Optimization	268 <sup>3</sup>	425 <sup>3</sup>	785	1,484
Sustainable Community	-	-	352	352
Load Displacement	-	-	-	-
<u>Sector Enabling Activities</u>	<u>1,374</u>	<u>2,100</u>	<u>1,280</u>	<u>4,755</u>
<b>Sector Total</b>	<b>17,370</b>	<b>31,892</b>	<b>44,957</b>	<b>94,219</b>
<b>Industrial Sector</b>				
Mechanical Pulping	-	-	-	-
Power Smart Partner - Transmission	8,223	6,443	8,529	23,196
Power Smart Partner - Distribution	1,351	5,963	11,025	18,338
New Plant Design	310	729	4,336	5,374
Load Displacement	-	-	-	-
<u>Sector Enabling Activities</u>	<u>1,219</u>	<u>1,283</u>	<u>1,235</u>	<u>3,738</u>
<b>Sector Total</b>	<b>11,103</b>	<b>14,418</b>	<b>25,126</b>	<b>50,646</b>
<b>Total Programs</b>	<b>41,655</b>	<b>67,820</b>	<b>99,961</b>	<b>209,436</b>
<b>Supporting Initiatives</b>				
Public Awareness & Education	11,295	8,469	8,367	28,130
Community Engagement	-	7,749	7,079	14,828
Technology Innovation	-	1,418	1,120	2,537
Codes & Standards Support	377	1,295	1,642	3,314
Information Technology	1,520	1,875	1,901	5,296
<u>Indirect &amp; Portfolio Enabling</u>	<u>11,231</u>	<u>9,290</u>	<u>8,724</u>	<u>29,245</u>
<b>Total</b>	<b>24,422</b>	<b>30,095</b>	<b>28,832</b>	<b>83,350</b>
<b>Total DSM</b>	<b>67,554</b>	<b>104,807</b>	<b>134,792</b>	<b>307,152</b>

<sup>3</sup> Comprising all DSM deferred operating and specific capital expenditures and operating expenditures that are relevant for DSM cost-effectiveness. To present information in a format consistent with the DSM expenditures presented in BC Hydro's 2008 LTAP, which cover the years F2008 forward, these figures do not include \$15.2 million in incentive refunds received since F2009 relating to DSM program activity before F2008.

## **BC Hydro F11 RRA Evidentiary Update - Revised Appendix 8**

Notes:

- 1 Numbers are rounded.
- 2 These expenditures differ slightly from the F2008 actual expenditures presented in BC Hydro's Report on DSM Activities for F2008 because of the inclusion of expenditures for Rate Structures and Voltage Optimization in order to align with DSM expenditures presented in BC Hydro's 2008 LTAP.
- 3 These expenditures differ from those presented in BC Hydro's reports on DSM activities for F2008 and F2009 because they have been adjusted to better reflect Voltage Optimization costs that contribute to energy savings.

**4. Plan Performance**

BC Hydro’s DSM electricity savings since F2008 totalled 1,778 GWh/year at March 31, 2010, which equates to 103 per cent of the planned savings of 1,731 GWh/yr in BC Hydro’s DSM Plan from the 2008 LTAP. Table 3 presents actual cumulative savings as a percentage of plan in F2008 to F2010. The figures in the table do not reflect the reduction in planned DSM savings presented in the 2008 LTAP Evidentiary Update because the Update only contained a new estimate of the DSM Plan’s total savings and not individual DSM initiatives.

**Table 3 Cumulative Electricity Savings since April 1, 2007 (Revised)**

Actual as a Percentage of Plan <sup>1</sup>			
	F2008	F2009	F2010
<b>Codes and Standards</b>			
Residential	0%	26%	11%
Commercial	0%	0%	2173%
<u>Industrial</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<b>Total Codes and Standards</b>	<b>0%</b>	<b>24%</b>	<b>29%</b>
<b>Rate Structures</b>			
Residential	n/a	131%	113%
Commercial	n/a	n/a	0%
Industrial <sup>2</sup>	<u>n/a</u>	<u>n/a</u>	<u>0%</u>
<b>Total Rate Structures</b>	<b>n/a</b>	<b>131%</b>	<b>68%</b>
<b>Programs</b>			
<b>Residential Sector</b>			
Behaviour	127%	112%	42%
Voltage Optimization	0%	18%	28%
Lighting	710%	519%	461%
Sustainable Community	n/a	n/a	n/a
Refrigerator Buy-Back	155%	133%	130%
Low Income	n/a	54%	50%
New Home	130%	147%	112%
Appliances and Electronics	29%	139%	76%
Renovation Rebate	192%	138%	170%
<u>Load Displacement</u>	<u>n/a</u>	<u>n/a</u>	<u>0%</u>
Sector Total	268%	172%	127%
<b>Commercial Sector</b>			
Power Smart Partners	89%	120%	127%
Product Incentive	105%	121%	137%
High Performance Buildings	48%	103%	169%
Voltage Optimization	0%	18%	27%
Sustainable Community	n/a	n/a	n/a
<u>Load Displacement</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
Sector Total	89%	115%	131%
<b>Industrial Sector</b>			
Mechanical Pulp <sup>3</sup>	n/a	n/a	n/a
Power Smart Partner - Transmission <sup>4</sup>	186%	141%	132%
Power Smart Partner - Distribution	69%	79%	69%
New Plant Design	n/a	159%	1856%
<u>Load Displacement</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
Sector Total	165%	135%	130%
<b>Total Programs</b>	<b>160%</b>	<b>136%</b>	<b>130%</b>
<b>Total DSM</b>	<b>155%</b>	<b>133%</b>	<b>103%</b>

Notes:

1 Reported savings for codes and standards in F2009 and F2010 and for rates structures in F2010 are based on planned estimates.

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- 2 A combined estimate of savings from both the Transmission Service Rate and Power Smart Partner - Transmission program is presented in the Power Smart Partner - Transmission program line. Upon an evaluation of energy savings from the Transmission Service Rate and Power Smart Partner - Transmission program, BC Hydro will assess reporting separate estimates of savings from each initiative.
- 3 Mechanical Pulping expenditures and savings are included in Power Smart Partner - Transmission.
- 4 Includes estimated electricity savings resulting from the Transmission Service Rate that are based on planned estimates.
5. n/a indicates no electricity savings were planned.

The DSM electricity savings presented in Table 3 have been achieved at an average utility cost of 1.7 cents/kWh. Table 4 presents the levelized utility cost of actual DSM electricity savings achieved from April 1, 2007 through March 31, 2010.

**Table 4 Utility Cost of Electricity Savings: F2008 to F2010 (Revised)**

	Levelized Utility Cost (cents/kWh)
<b>Rate Structures</b>	
Residential	0.6
Commercial	n/a
<u>Industrial<sup>1</sup></u>	<u>n/a</u>
<b>Total Rate Structures</b>	<b>0.7</b>
<b>Programs</b>	
<b>Residential Sector</b>	
Behaviour	2.6
Voltage Optimization	3.5
Lighting	1.3
Sustainable Community	n/a
Refrigerator Buy-Back	3.1
Low Income	7.9
New Home	2.5
Appliances and Electronics	8.1
Renovation Rebate	2.5
Load Displacement	n/a
<u>Sector Enabling Activities</u>	<u>n/a</u>
Sector Total	2.9
<b>Commercial Sector</b>	
Power Smart Partners	4.0
Product Incentive	2.3
High Performance Buildings	3.0
Voltage Optimization	3.5
Sustainable Community	n/a
Load Displacement	n/a
<u>Sector Enabling Activities</u>	<u>n/a</u>
Sector Total	3.2
<b>Industrial Sector</b>	
Mechanical Pulping	n/a
Power Smart Partner - Transmission <sup>2</sup>	0.7
Power Smart Partner - Distribution	4.1
New Plant Design	3.0
Load Displacement	<u>n/a</u>
<u>Sector Enabling Activities</u>	<u>n/a</u>
Sector Total	1.1
<b>Total Programs</b>	<b>2.0</b>
<b>Total DSM</b>	<b>1.7</b>

Notes:

- 1 A combined estimate of the levelized utility cost for both the Transmission Service Rate and Power Smart Partner - Transmission program is presented below in the Power Smart Partner - Transmission program line. Upon an evaluation of energy savings from the Transmission Service Rate and Power Smart

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- Partner - Transmission program, BC Hydro will assess reporting separate levelized utility costs for each initiative.
- 2 The levelized utility cost of the Power Smart Partner - Transmission program includes estimated electricity savings and costs from the Transmission Service Rate.

The DSM electricity savings presented in Table 3 have been achieved at a substantially lower cost than new electricity supply, with an All Ratepayers Test benefit-cost ratio of 3.7. Table 5 presents benefit cost ratios of actual DSM electricity savings achieved from April 1, 2007 through March 31, 2010.

**Table 5 Benefit-Cost Ratios of Electricity Savings: F2008 to F2010 (Revised)**

	Benefit Cost Ratios		
	Utility Test	All Ratepayers Test	Non Participant Test <sup>4</sup>
<b>Rate Structures</b>			
Residential	24.5	24.5	1.3
Commercial	n/a	n/a	n/a
Industrial <sup>1</sup>	n/a	n/a	n/a
<b>Total Rate Structures</b>	<b>19.8</b>	<b>19.8</b>	<b>1.3</b>
<b>Programs</b>			
<b>Residential Sector</b>			
Behaviour	5.5	5.7	1.3
Voltage Optimization	4.1	4.1	1.2
Lighting	11.7	4.7	1.7
Sustainable Community	n/a	n/a	n/a
Refrigerator Buy-Back	4.2	5.0	1.1
Low Income <sup>2</sup>	2.0	2.0	1.0
New Home	5.2	1.3	1.3
Appliances and Electronics	1.6	3.0	0.8
Renovation Rebate	5.6	1.7	1.1
Load Displacement	n/a	n/a	n/a
<u>Sector Enabling Activities</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
Sector Total	4.8	3.2	1.3
<b>Commercial Sector</b>			
Power Smart Partners	3.3	3.3	0.9
Product Incentive	5.8	3.6	1.2
High Performance Buildings	4.5	2.3	1.2
Voltage Optimization	3.9	3.9	1.1
Sustainable Community	n/a	n/a	n/a
Load Displacement	n/a	n/a	n/a
<u>Sector Enabling Activities</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
Sector Total	4.1	3.1	1.0
<b>Industrial Sector</b>			
Mechanical Pulping	n/a	n/a	n/a
Power Smart Partner - Transmission <sup>3</sup>	19.4	2.5	1.6
Power Smart Partner - Distribution	3.3	2.4	0.9
New Plant Design	4.4	4.7	1.7
Load Displacement	n/a	n/a	n/a
<u>Sector Enabling Activities</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
Sector Total	12.3	2.5	1.5
<b>Total Programs</b>	<b>6.5</b>	<b>2.8</b>	<b>1.3</b>
<b>Total DSM</b>	<b>8.1</b>	<b>3.7</b>	<b>1.3</b>

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### Notes:

- 1 A combined view of the benefit cost ratios from both the Transmission Service Rate and Power Smart Partner - Transmission program is presented in the Power Smart Partner - Transmission program line. Upon an evaluation of energy savings from the Transmission Service Rate and Power Smart Partner - Transmission program, BC Hydro will assess reporting separate benefit cost ratios for each initiative.
- 2 The All Ratepayers Test benefit-cost ratio for the Low Income program includes a 30 per cent adder to program benefits, in keeping with the 2008 DSM regulation (Ministerial Order M 271).
- 3 The benefit cost ratios of the Power Smart Partner - Transmission program includes estimated electricity savings and costs from the Transmission Service Rate.
- 4 While the 2008 DSM regulation precludes the use of the Non Participant Test in determining cost-effectiveness of a demand-side measure, this benefit cost ratio is included in the table consistent with Directive 42 from the BCUC decision on BC Hydro's 2008 LTAP.

## 5. Mitigation Measures

Table 3 indicates that most DSM initiatives are above plan in terms of cumulative electricity savings in F2010 while Table 5 indicates that each initiative has delivered electricity savings at a substantially lower cost than new electricity supply. The following are mitigation measures that have been undertaken or are planned for the future.

<b>Codes and Standards</b>	
Residential	Cumulative electricity savings in F2010 were below plan primarily because of a delay in the federal government's introduction of regulations for ceiling fans, set-top boxes and external power supplies. BC Hydro continues to work with the federal government to ensure these regulations are implemented as soon as possible.
Commercial	Cumulative electricity savings in F2010 were above plan. No mitigation measures are warranted.
Industrial	No electricity savings were planned.
<b>Rate Structures</b>	
Residential	Cumulative electricity savings in F2010 were above plan. No mitigation measures are warranted.
Commercial	Cumulative electricity savings in F2010 were below plan because of the deferral of the expected LGS start date from April 2009 to January 2011. No mitigation measures are warranted because planned electricity savings are expected to be achieved once the rate takes effect.
Industrial	Cumulative electricity savings in F2010 were below plan because of the deferral of the expected LGS start date from April 2009 to January 2011. No mitigation measures are warranted because planned electricity savings are expected to be achieved once the rate takes effect.
<b>Programs</b>	
<b>Residential Sector</b>	
Behaviour	Cumulative electricity savings in F2010 were below plan because of planned activities enabled by the SMI program not occurring as planned in F2010. BC Hydro continues to move the SMI program forward. The program continues to evolve in the absence of SMI to secure cost-effective electricity savings.
Voltage Optimization	Cumulative electricity savings in F2010 were below plan because of voltage optimization projects taking longer to complete than planned and technical issues, now resolved, on other related projects that prevented the realization of voltage optimization savings for a period of time. No mitigation measures are warranted because planned electricity savings are expected to be achieved now that further project implementation experience has been gained and technical issues have been resolved.
Lighting	Cumulative electricity savings in F2010 were above plan. The program has successfully expanded the number of participating retail partners which has contributed to more savings than planned.

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Sustainable Community	No electricity savings were planned.
Refrigerator Buy-Back	Cumulative electricity savings in F2010 were above plan. No mitigation measures are warranted.
Low Income	Cumulative electricity savings in F2010 were below plan because of a delay in launching the audit and retrofit element of the program. This program element is now operational. Despite this delay, the program design has evolved to secure cost-effective electricity savings, including an expanded effort in community marketing and enlisting the partnership of non-profit housing providers and aboriginal communities.
New Home	Cumulative electricity savings in F2010 were above plan. In light of the decline in detached housing starts in F2009 and F2010, the program shifted its focus to multi-family buildings in order to continue to secure cost-effective electricity savings.
Appliances and Electronics	Cumulative electricity savings in F2010 were below plan because of the set-top box portion of the program not launching as a result of a lack of vendor support and insufficient specifications for efficient set-top boxes. BC Hydro concluded that the energy savings opportunity among set-top boxes would be better captured through an energy efficiency regulation rather than the program at this time and is working with government to implement this regulation as soon as possible. The appliance and television portions of the program evolved to continue to secure cost-effective electricity savings, including adjusting the eligibility criteria for both appliances and televisions.
Renovation Rebate	Cumulative electricity savings in F2010 were above plan. No mitigation measures are warranted because of a highly successful partnership with the provincial government's LiveSmart program which has increased program participation.
Load Displacement	No electricity savings were planned.
<b>Commercial Sector</b>	
Power Smart Partner	Cumulative electricity savings in F2010 were above plan. No mitigation measures are warranted going forward. Actual electricity savings have increased relative to plan since F2008 in response to changes to the program offer and market and communication strategy and to the launch of new program components.
Product Incentive	Cumulative electricity savings in F2010 were above plan. No mitigation measures are warranted going forward. Actual electricity savings have increased relative to plan since F2008 in response to changes to the program process and marketing and communication strategy.
High Performance Buildings	Cumulative electricity savings in F2010 were above plan. No mitigation measures are warranted going forward. Actual electricity savings have increased relative to plan since F2008 in response to changes to the program process and marketing and communication strategy and the launch of a tiered incentive model.
Voltage Optimization	See Residential Sector.
Sustainable Community	See Residential Sector.

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Load Displacement	See Residential Sector.
<b>Industrial Sector</b>	
Mechanical Pulping	The program is currently embedded within the Power Smart Partner – Transmission program.
Power Smart Partner – Transmission	Cumulative electricity savings in F2010 were above plan. BC Hydro has adjusted the program's incentive offer in response to lower than planned participation in order to secure cost-effective electricity savings.
Power Smart Partner – Distribution	Cumulative electricity savings in F2010 were below plan because of longer than expected lag times between the completion of energy studies and the ensuing energy saving projects. No mitigation measures are warranted because planned electricity savings are expected to be achieved once the lag time is accounted for.
New Plant Design	Cumulative electricity savings in F2010 were above plan. The program has been able to exceed planned savings by targeting growth sectors.
Load Displacement	See Residential Sector.

## **6. Operating Expenditures for Fiscal 2010**

BC Hydro's DSM operating expenditures in F2010 totalled \$1,266,146.<sup>4</sup> Table 6 presents DSM operating expenditures in F2010.

**Table 6 Operating Expenditures for Fiscal 2010**

	<b>(\$000)</b>
ABS Services	7
External Recoveries	(17)
Internal Services Received	0
Labour	1,085
Materials	16
Services	153
Facilities and Equipment	23
<b>Total</b>	<b>1,266</b>

## **7. Allocation of Supporting Initiative Costs to Programs<sup>5</sup>**

This section describes how supporting initiative costs are allocated to programs for the purpose of cost test calculations.

In keeping with Directive 61 from the BCUC decision on the F05/F06 RRA, when calculating levelized costs and benefit cost ratios for this report, supporting initiative costs are allocated to DSM programs and rate structures based on their share of DSM electricity savings in F2018. For example, rate structures and programs are forecast to save roughly 6,554 GWh/year in F2018, so a program that is forecast to save 65 GWh/year in F2018 represents one per cent of the total. In turn, one per cent of supporting initiative costs would be allocated to that program in each year when calculating the program's levelized cost or benefit cost ratio.

<sup>4</sup> DSM operating expenditures relevant for DSM cost-effectiveness, such as those related to rate structures, are reported in Table 1 and not included here.

<sup>5</sup> A description of the functions of supporting initiatives is available in BC Hydro's 2008 LTAP (Exhibit B-1-1, Appendix K, p. 183 of 213).