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April 2, 2012

**Via Email**  
**Original via Mail**

Ms. Alanna Gillis  
Acting Commission Secretary  
BC Utilities Commission  
Sixth Floor, 900 Howe Street, Box 250  
Vancouver, BC V6Z 2N3

Dear Ms. Gillis:

**Re: *FortisBC Inc.'s Semi-Annual Demand Side Management Report***

Please find enclosed for filing, FortisBC's Semi-Annual Demand Side Management Report to December 31, 2011. Twelve hard copies will be couriered to the British Columbia Utilities Commission.

Sincerely,

A handwritten signature in black ink, appearing to be "DS" with a long horizontal flourish extending to the right.

Dennis Swanson  
Director, Regulatory Affairs



**FORTISBC INC.**

**SEMI-ANNUAL DSM REPORT**

**YEAR ENDED DECEMBER 31, 2011**

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**REPORT OBJECTIVE**

This report provides highlights of FortisBC Inc.'s (FortisBC or the Company) Demand Side Management (DSM) programs for the year ending December 31, 2011. The report provides a summary of program activities and compares actual energy savings and costs to approved Plan, where applicable. A statement of financial results and a calculation of the DSM incentive amount earned are also provided. Finally, a summary of historical FortisBC DSM costs and energy savings for the past five years is included in Appendix C.

**Overview of Results for the Year Ended December 31, 2011**

Energy efficiency savings for the year ended December 31, 2011 were 36.3 GWh, or 91 per cent of the 39.8 GWh Plan. Company costs incurred were \$5,917,000 or 75 per cent of the approved Plan of \$7,842,000. Adding the customers' costs to the Company's program costs yields a Total Resource Cost (TRC) of \$9,383,000 with an overall TRC benefit/cost ratio of 1.6.

**OVERVIEW OF PROGRAM ACTIVITIES**

This section describes the program activities in each sector, including whether the program is new or an enhanced version of an existing program. A summary table that describes the program or measure and the rebate incentive structure accompanies each section.

**Residential Programs**

PowerSense made many changes and additions to the Residential programs in 2011. Residential rebates were enhanced for existing measures by typically doubling the incentive rate on average; for example, the incentive for a standard split or packaged Air Source Heat Pump (ASHP) of three tons<sup>1</sup> has increased from \$300 to \$600. The Electronics "spiff"<sup>2</sup> program targets the highest efficiency tier 5 televisions. Additional programs and measures have been introduced, including an ASHP maintenance pilot program, an Electronic Programmable Thermostat rebate, an Energy Star Appliance rebate program (which includes appliances such as clothes washers,

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<sup>1</sup> Ton refers to refrigeration capacity, and is equal to 12,000 BTU/hour.

<sup>2</sup> "Spiff" is an incentive paid to salespeople to promote qualified products, in this case, EnergyStar electronics.

refrigerators, dishwashers, freezers, bathroom fans, etc.), a Refrigerator Take-Back program and stepped rebates for attaining EnerGuide Rating 80, 84 or 90 for new home construction.

Based on the highly successful small business direct lighting program (FortisBC LiveSmart Installation Program or FLIP), PowerSense created a direct installation lighting program for low-income multi-family homes. This was done in partnership with the Ministry of Energy and Mines with support from the British Columbia Non-Profit Housing Association. PowerSense also expanded its instant rebate program for energy efficient lighting to many big box stores (such as Home Depot, Rona, Save-On Foods, and London Drugs).

PowerSense also piloted an intensive “energy diet” residential marketing campaign to promote the LiveSmart BC and ecoEnergy rebate programs. The Rossland Energy Diet has proven successful thus far with approximately 22 percent of eligible homeowners undertaking a home energy audit, as a precursor to their energy retrofits.

The following table details the residential program offers for 2011.

#### 2011 Residential Offers

Program/ Measure Description	Status	Rebate Incentive Rate	Type of Residence
Insulation: ICF or SIP (must be to roofline)	Enhanced	\$500 per detached house; \$300 per townhouse; \$150 per apartment	New Home
Insulation Upgrade	Enhanced	\$0.25 per square foot	Existing Home
EnergyStar air source heat pump - split or packaged space heating	Enhanced	\$200/ton	New and Existing Homes
EnergyStar air source heat pump - ductless mini-split	Enhanced	\$300/ton	New and Existing Homes
Air-source packaged terminal heat pump	Enhanced	\$100/ton	New and Existing Homes
Heat Pump Maintenance Program (pilot)	New	\$25 per tune-up	Existing Homes

<b>Program/ Measure Description</b>	<b>Status</b>	<b>Rebate Incentive Rate</b>	<b>Type of Residence</b>
Geoexchange heating system	Enhanced	\$500/ton	New and Existing Homes
EnergyStar Windows and Doors	Enhanced	\$2.50 per square foot	Existing Homes
Programmable Thermostat	New	50% up to \$20	Existing Homes
EnergyStar Refrigerator (Tier 3)	New	\$50	New and Existing Homes
Fridge Take-Back Program	New	\$20 to customer, \$35 to retailer to collect and recycle old refrigerator	Existing Homes
EnergyStar Freezer	New	\$25	New and Existing Homes
EnergyStar Clothes washer (Tier 3)	New	\$75	New and Existing Homes
EnergyStar Dishwasher (Tier 2)	New	\$25	New and Existing Homes
EnergyStar Bathroom Fan	Enhanced	\$50	New and Existing Homes
EnergyStar Television (Tier 5)	Enhanced	\$25 (paid to retailer)	New and Existing Homes
EnergyStar CFL fixture or luminaire	Enhanced	50% up to \$10	New and Existing Homes
CFL lamp (specialty)	Enhanced	50% up to \$2.50	New and Existing Homes
EnergyStar LED lamp > 10W (hardwired luminaire)	Enhanced	50% up to \$50	New and Existing Homes
EnergyStar LED lamp > 10W (screw-in)	Enhanced	50% up to \$30	New and Existing Homes
EnergyStar LED lamp < 10W	Enhanced	50% up to \$15	New and Existing Homes

<b>Program/ Measure Description</b>	<b>Status</b>	<b>Rebate Incentive Rate</b>	<b>Type of Residence</b>
ENERGUIDE 80	New	\$1,500	New Home
ENERGUIDE 84	New	\$3,000	New Home
ENERGUIDE 90	New	\$5,000	New Home
Lighting direct installation program	New	N/C for qualifying multi-family units	Low Income Multi-Family
Energy saving kits	Same	For qualifying low-income households (home owners and renters)	Low Income Homes

### **Commercial and Industrial Programs**

In 2011 PowerSense doubled the incentive rate for custom rebates from \$0.05/kWh to \$0.10/kWh for Commercial customers.

In partnership with LiveSmart BC for Business, PowerSense introduced the FLIP program, a direct installation lighting program for businesses that use less than \$20,000 of electricity annually. The average cost per participant is \$4,300 of which FortisBC pays an incentive of \$0.10/kWh, based on the energy savings, to a maximum of \$1,000 while the LiveSmart BC Business program pays the balance.

The Building Optimization Program (BOP) provides customers with multiple premises with the tools to save energy. BOP includes an audit report and the installation of Energy Management Information System (EMIS) software to track their utility usage over time and a minimum of three years of monitoring and tracking.

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**2011 Commercial and Industrial Offers**

<b>Program/ Measure Description</b>	<b>Status</b>	<b>Rebate Incentive Rate</b>
New facility assessment	Enhanced	\$0.10/kWh
Business audit	Same	Free walk through; 50% funding for comprehensive 3rd party audit
Industrial audit	Enhanced	\$0.10/kWh
Irrigation and Municipal Water Infrastructure	Enhanced	\$0.10/kWh
Partners in Efficiency	Same	On-going support and rebates
FortisBC LiveSmart BC Lighting Installation Program (FLIP)	New	\$0.10/kWh up to \$1,000
Building Optimization	New	Energy management information system and audit

**Public Awareness (Conservation Culture) Programs**

In the spring of 2011, PowerSense expanded its Earth Hour program's reach and participation through a heightened awareness campaign. Customers across the FortisBC service area sent in 1,604 pledges, each committing to turn their lights off for one hour. This was an 80 per cent increase in the number of pledges received compared to the prior year. The results show that electricity consumption dropped by approximately one per cent, or 3.58 MW, during Earth Hour.

In addition to participating in almost 100 community events throughout its service territory, PowerSense distributed nearly 9,000 clotheslines at more than 25 give-away events. PowerSense also hosted the annual PowerSense Awards in November in the BC Centre for Excellence at Okanagan College. Awards were presented to 15 businesses, organizations and individuals in recognition of their sound energy efficiency practices and investment in long-term sustainability.



Customer profiles and videos of installation of energy efficient measures in homes were created and added to the website, and winter heating and Christmas LED light advertising campaigns were run in the second half of the year. A Scratch ‘n’ Save campaign was run, in partnership with BC Hydro and FortisBC Energy to promote NRCan energy assessments for homeowners.

### 2011 Public Awareness (Conservation Culture) Offers

Program/ Measure Description	Status	Expenditure
Earth Hour promotion	Enhanced	\$25,000
Clothesline give-away and laundry information campaign	Enhanced	\$120,000
Scratch ‘n’ Save (for NRCan energy assessment)	New	\$25-150 rebate
Powerlines (customer newsletter)	Enhanced	Six issues per year with new “magazine” look

### Programs in Development

The PowerSense team has been working on developing other new programs and enhancing some existing programs, including:

- Irrigation Rebate program;
- Business Signage Lighting Rebate program;
- Retail Energy Star Lighting Instant Rebate program;
- Product Option Program (fixed rebates for retro-fitting product specific lighting, pumps, fans, motors, refrigeration, controls and sensors, HVAC systems and commercial kitchen appliances);
- Commercial Kitchen program; and
- Phase 2 of the low-income direct installation lighting program (Kootenays).

## ENERGY SAVINGS BY SECTOR

The energy savings for the year ended December 31, 2011, are shown in the table below.

Sector	Plan	Actual	% of Plan
	GWh		Achieved
Residential	16.4	11.4	69%
Commercial	13.9	24.2	173%
Industrial	9.4	0.8	8%
<b>Total Savings (GWh)</b>	<b>39.8</b>	<b>36.3</b>	<b>91%</b>

Note: Minor differences due to rounding

Commercial energy savings were above Plan at 173 per cent. Residential and Industrial energy savings were under Plan at 69 per cent and 8 per cent respectively. These results are discussed in more detail in the following sections.

### Detail of Energy Savings

The following sector tables provide details on the DSM energy savings in each sector, including wholesale DSM activities in the service territories of the FortisBC wholesale customers.

Residential	Plan	Actual	% of Plan
	GWh		Achieved
Home Improvement Program	9.0	3.7	41%
Low Income	0.5	1.4	268%
Residential Lighting	3.4	3.3	97%
Heat Pumps	3.4	2.3	66%
New Home Program	0.1	0.7	656%
<b>Total Savings (GWh)</b>	<b>16.4</b>	<b>11.4</b>	<b>69%</b>

Note: Minor differences due to rounding

In the year ended December 31, 2011, the energy saving results from Residential construction and renovation activity were 69 per cent of Plan. The 11.4 GWh savings figure is a 2 per cent decrease from the 2010 sector results of 11.6 GWh. The Low Income and New Home programs exceeded Plan, and the Residential Lighting program came very close to meeting Plan. The Home Improvement and Heat Pump programs fell short of forecast. The LiveSmart BC collaboration resulted in 2.6 GWh of retrofit energy savings, which are recorded in the Heat Pump and Home Improvement (HIP) programs.

The New Home program savings were well above Plan and the popularity of the EnerGuide home ratings among developers likely contributed to the success. In 2011, the Low Income program distributed 960 energy saving kits and completed lighting retrofits in 45 low income multi-family buildings. Approximately 130 water saver kits and 380 low flow showerheads were distributed as part of the Home Improvement program.

The Commercial sector recorded savings of 24.2 GWh, or 173 per cent of Plan, as indicated in the table below. This result is a 65 per cent increase compared with the 2010 sector total of 14.7 GWh.

<b>Commercial</b>	<b>Plan</b>	<b>Actual</b>	<b>% of Plan Achieved</b>
	<b>GWh</b>		
Lighting	7.4	20.6	279%
Building and Process Improvement	3.0	1.4	46%
Water Handling and Infrastructure	3.6	2.2	62%
<b>Total Savings (GWh)</b>	<b>13.9</b>	<b>24.2</b>	<b>173%</b>

Note: Minor differences due to rounding

The majority of the Commercial sector savings are realized through the Commercial lighting programs, which include both “at the counter” product rebates and custom lighting retrofits, such as those installed at a hardware store in Penticton producing 0.1 GWh savings. Another large component of the Commercial lighting programs is the FLIP direct installation program, a collaborative effort with the LiveSmartBC Business program. FLIP was very popular in 2011 providing lighting upgrades to more than 750 small commercial customers and achieving 6.4 GWh of savings.

The Building Improvement (BIP) program incents improved building envelopes and systems, e.g. heating, ventilation and air conditioning. One such project in 2011 was the geothermal exchange system and other measures that were installed at a post-secondary educational facility resulting in 0.6 GWh of savings.

The water handling infrastructure projects completed in 2011 included a large process optimization project at the Kelowna municipal wastewater treatment facility, which contributed 2.0 GWh of savings.

The Industrial Programs achieved savings of 0.8 GWh or 8 per cent of the 9.4 GWh Plan, as detailed in the table below.

<b>Industrial</b>	<b>Plan</b>	<b>Actual</b>	<b>% of Plan Achieved</b>
	<b>GWh</b>		
Industrial Efficiency	9.4	0.8	8%
Integrated EMIS	0.1	0.0	0%
<b>Total Savings (GWh)</b>	<b>9.4</b>	<b>0.8</b>	<b>8%</b>

Note: Minor differences due to rounding

The Plan includes 7.2 GWh of anticipated energy savings for the Zellstoff Celgar Limited Partnership (Celgar) pulp mill project which were not realized due to regulatory proceedings that had the potential to affect the treatment of demand-side measures. If this project is excluded from the Plan, the goal for Industrial energy savings would be 2.2 GWh, and 35 per cent of this restated goal was achieved by the Industrial Efficiency Program in 2011.

Examples of Industrial Efficiency projects in 2011 included the installation of variable frequency drives on process equipment at the Princeton Co-Generation Co-op resulting in 0.1 GWh of energy savings. Further process improvement at a Princeton sawmill resulted in 0.4 GWh of savings.

Two customers were assessed for their readiness to incorporate EMIS (Energy Management Information Systems) software and sub-metering, as part of this pilot project. No savings were recorded in 2011, as these tend to be multi-year projects, where savings are realized later in the process.

The table below disaggregates the Wholesale DSM results from the sector tables above.

<b>Wholesale Customer</b>	<b>GWh</b>	<b>MW</b>	<b>% of GWh</b>
Grand Forks	0.1	0.0	1%
Summerland	0.6	0.2	7%
Nelson	0.6	0.2	6%
Penticton	2.2	0.3	24%
Kelowna	5.7	0.7	62%
<b>Total Savings (Wholesale)</b>	<b>9.1</b>	<b>1.3</b>	<b>100%</b>

Note: Minor differences due to rounding

The total Wholesale energy savings, which were acquired within the service areas of the five municipal electric utilities served by FortisBC, were 9.1 GWh and 1.3 MW to December 31, 2011. The largest DSM savings results occurred within Kelowna and Penticton municipal utility service areas. In both these areas, the Commercial Lighting and Commercial Building Improvement programs contributed the largest amount of savings.

A reporting error was discovered in the method used to extract the wholesale results from the energy management database, which significantly understated the savings within the wholesale service areas in previous years. Wholesale energy savings results from the December 31, 2009 and 2010 yearend reports have been corrected and the tables are provided in Appendix D.

## PROGRAM COSTS

The table below presents the actual costs incurred in 2011 compared to Plan.

### Summary of Costs by Sector

Sector/Component	Plan	Actual	% of Plan
	(\$000s)		Achieved
Residential	3,636	1,700	47%
Commercial	2,118	2,832	134%
Industrial	613	137	22%
Supporting Initiatives	725	658	91%
Monitoring & Evaluation	308	184	60%
Planning & Admin	443	406	92%
<b>Total</b>	<b>7,842</b>	<b>5,917</b>	<b>75%</b>

Note: Minor differences due to rounding

Costs amounted to \$5,917,000 or 75 per cent of the approved Plan to December 31, 2011. Under spending is partially due to the step change in the 2011 budget and the ramp-up time necessary to build capacity and launch new programs. Specific causes of spending variances are discussed further in the sector results below. Appendix A contains a more detailed breakdown of total program costs, including the customer portion of costs.

### Costs per Sector

Residential	Plan	Actual	% of Plan
	(\$000s)		Achieved
Home Improvement Program	2,145	479	22%
Low Income	305	245	80%
Residential Lighting	438	239	55%
Heat Pumps	694	532	77%
New Home Program	54	205	380%
<b>Total</b>	<b>3,636</b>	<b>1,700</b>	<b>47%</b>

Note: Minor differences due to rounding

The utility cost of Residential programs was \$1,700,000 or 47 per cent of Plan for 2011. There was uncertainty surrounding the Federal ecoEnergy home retrofit program, which was initially announced January 2011, and belatedly came into effect July 2011. This uncertainty likely contributed to decreased retrofit activity in the Heat Pumps and Home Improvement programs.

Incentives paid to Residential participants amounted to \$1,076,000, or 63 per cent of utility costs, compared to \$2,896,000 Plan, due to lower activity levels than expected.

<b>Commercial</b>	<b>Plan</b>	<b>Actual</b>	<b>% of Plan Achieved</b>
	<b>(\$000s)</b>		
Lighting	1,114	1,995	179%
Building and Process Improvement	572	606	106%
Water Handling and Infrastructure	432	231	54%
<b>Total</b>	<b>2,118</b>	<b>2,832</b>	<b>134%</b>

Note: Minor differences due to rounding

Commercial sector costs, to December 31, 2011 amounted to \$2,832,000 or 134 per cent of Plan. The largest cost component of Commercial programs was the Lighting program, which include incentives paid through the FLIP program in collaboration with LiveSmart BC for Business. Incentives paid to Commercial Lighting program participants in 2011 amounted to \$1,233,000 compared to \$793,000 Plan, a variance of \$440,000. The costs for this sector are commensurate with the energy savings, both of which are well above Plan.

<b>Industrial</b>	<b>Plan</b>	<b>Actual</b>	<b>% of Plan Achieved</b>
	<b>(\$000s)</b>		
Industrial Efficiency	603	128	21%
Integrated EMIS	10	9	90%
<b>Total</b>	<b>613</b>	<b>137</b>	<b>22%</b>

Note: Minor differences due to rounding

Industrial sector costs were \$137,000 for the period, or 22 per cent of Plan. The 2011 Industrial DSM Plan includes the \$372,000 associated with the Celgar project, which did not proceed. If the Celgar related costs are excluded, the restated plan is \$231,000 and the 2011 costs for Industrial Efficiency would be 55 per cent of the restated goal.

## Portfolio Costs

Portfolio level costs, that are not specifically associated with individual programs, include Supporting Initiatives and Planning and Evaluation. These are summarized in the table below.

Components	Plan	Actual	% of Plan
	(\$000s)		Achieved
Supporting Initiatives*	725	658	91%
Monitoring & Evaluation	308	184	60%
Planning & Admin	443	406	92%
<b>Total</b>	<b>1,475</b>	<b>1,248</b>	<b>85%</b>

Note: Minor differences due to rounding

\*Including Conservation Culture

The Supporting Initiative costs for 2011 were \$658,000 or 91 per cent of the \$725,000 Plan. The Conservation Culture costs included in Supporting Initiatives were \$385,000. Supporting Initiatives include programs such as: Earth Hour promotion, energy conservation awareness campaigns, Powerlines newsletters, education for multiple age groups and trade allies, employee and community engagement.

The Planning and Evaluation budget is separated into two main components “Monitoring and Evaluation” (M&E) and “Planning and Administration”. Both were under budget, particularly M&E with costs of \$184,000, or 60 per cent of Plan. This was largely due to the fact that the M&E Analyst position was not filled until May 2011. The Planning & Administration expenditure was \$406,000, 92 per cent of Plan.

In Appendix A, Program Development costs are further broken out from the Planning and Administration costs.



## FINANCIAL RESULTS

Program benefits are calculated on the present value of avoided power purchase costs. In this Semi-Annual Report it is based on the blended 2011 BC Hydro Rate Schedule 3808 (RS3808) over the measure lifespan, plus a deferred construction factor. The blended RS3808 rate for 2011 amounts to a value of \$34.90/ MWh for energy and \$59.44/kW-year for capacity. The deferred construction factor contributes \$32.96/kW-year to the avoided costs. Using present value of the avoided power purchase costs over the measure lifespan, an overall benefit/cost ratio of 1.6 was achieved in 2011.

### Financial Results for Year Ending December 31, 2011 by Program

Program	Program Benefits	Planning & Evaluation					Total Costs	Benefits less Costs	Benefit Cost Ratio
		Program Costs	Program Dev.	Planning & Admin.	Monitoring & Eval.	Customer Costs			
(\$000s)									
<b>Residential</b>									
Home Improvement	1,742	479	6	35	19	542	1,080	662	1.6
Low Income	356	245	2	14	7	93	361	(5)	1.0
Residential Lighting	857	239	5	32	17	103	396	461	2.2
Heat Pumps	1,028	532	4	22	11	513	1,082	(54)	1.0
New Home Program	480	205	1	7	3	283	500	(20)	1.0
<b>Residential Total</b>	<b>4,463</b>	<b>1,700</b>	<b>18</b>	<b>109</b>	<b>58</b>	<b>1,535</b>	<b>3,419</b>	<b>1,044</b>	<b>1.3</b>
<b>Commercial</b>									
Lighting	8,387	1,995	32	198	104	1,351	3,680	4,707	2.3
Building and Process Improvement	697	606	2	13	7	306	934	(237)	0.7
Water Handling Infrastructure	860	231	3	21	11	261	528	332	1.6
<b>Commercial Total</b>	<b>9,944</b>	<b>2,832</b>	<b>38</b>	<b>233</b>	<b>122</b>	<b>1,918</b>	<b>5,142</b>	<b>4,802</b>	<b>1.9</b>
<b>Industrial</b>									
Industrial Efficiency	388	128	1	8	4	13	154	234	2.5
Integrated EMIS	-	9	-	-	-	-	9	(9)	-
<b>Industrial Total</b>	<b>388</b>	<b>137</b>	<b>1</b>	<b>8</b>	<b>4</b>	<b>13</b>	<b>163</b>	<b>225</b>	<b>2.4</b>
Supporting Initiatives	-	658	-	-	-	-	658	-	-
<b>Total</b>	<b>14,795</b>	<b>5,327</b>	<b>57</b>	<b>349</b>	<b>184</b>	<b>3,466</b>	<b>9,383</b>	<b>5,412</b>	<b>1.6</b>

Note: Minor differences due to rounding

The benefit/cost ratios for the individual programs are also detailed in the table above. The Residential sector program performance resulted in a benefit/cost ratio of 1.3 for the sector. The Low Income program has a benefit/cost ratio of 1.0, which includes a 30 per cent benefits increase as per the DSM Regulation section 4, subsection 2(b).

The Commercial financial result for 2011 is a benefit/cost ratio of 1.9. Within this sector, the Building and Process Improvement program achieved a benefit/cost ratio of 0.7. This result is partly due to the impact of the recent Commercial Retrofit Building Improvement Program Evaluation report (see Appendix E). Steps will be implemented to use the recommendations from the report to strengthen the program.

The Industrial sector benefit/cost ratio was more robust at 2.4. While this is higher than the other sectors, this result is expected based on the 2011 Plan, where the Industrial sector had a higher benefit/cost ratio than the Residential and Commercial sectors.

### **Government Programs**

The Company continues to collaborate with the provincial government on various initiatives in both the Residential and Commercial sectors. On March 31, 2011 the second phase of the LiveSmart BC program for residential energy efficiency retrofits came to an end. On April 1, 2011 the third phase of the residential LiveSmart BC program opened to new entrants, but the uncertainty surrounding the federal ecoEnergy Retrofit offer, which was eventually implemented in July 2011, likely dampened customer demand for home energy audits. This market uncertainty contributed to a decrease in activity in the Home Improvement and Heat Pump (Air Source) programs in 2011.

In February 2011, the FLIP direct installation lighting program, which is a collaborative project with the LiveSmart BC Business program, opened to participants. The program has been very successful and has contributed to the high activity in Commercial sector lighting.

**DSM INCENTIVE FOR THE YEAR ENDED DECEMBER 31, 2011**

The table below presents the calculation of the DSM incentive for the year ended Dec 31, 2011.

<b>TRC Net Benefits (\$000s)</b>					
	Actual to Dec 31	Base 3-year Average	Eligible for Incentive	Performance	Incentive (\$000s)
Residential	1,229	2,404	1,229	51%	(55)
Commercial	5,194	3,451	4,273	124%	171
Industrial	237	638	237	37%	(7)
<b>Total</b>	<b>6,660</b>	<b>6,493</b>	<b>5,739</b>		<b>109</b>

Note: Minor differences due to rounding

Actual TRC Net Benefits to December 31, 2011 amounted to \$6,660,000, compared to the Base Net Benefits of \$6,493,000. The Actual Net Benefits are curbed by any sector expenditure over 110 per cent of plan, resulting in a reduced Eligible Net Benefits for the Commercial sector. The Net Benefits for each sector are compared to a 3-year rolling average Baseline to determine each sector's incentive amount.

The Residential and Industrial sectors performed below their Net Benefits baselines, earning negative incentives of \$55,000 and \$7,000, respectively. The Commercial sector performed well above the baseline average with an incentive of \$171,000. As per FortisBC's DSM Incentive Mechanism, a negative incentive in any sector(s) is used to offset any positive incentive amount(s) in other sectors, but the sum total cannot fall below zero. Therefore, the calculated DSM incentive is \$109,000 for the year ended December 31, 2011.

A more detailed description of the Incentive Mechanism calculation is found in Appendix B.

## APPENDIX A DSM SUMMARY REPORT

**FortisBC Demand Side Management Summary Report  
Year Ended December 31, 2011**

Sector/Program	Utility Program Costs			Planning and Evaluation			Total Utility Costs	Customer Incurred Cost	Total Resource Cost	Program Benefits	Energy Savings MWh	Benefit/Cost Ratios		Levelised Cost ¢/kWh	
	Direct Incentives	Direct Information	Program Labour	Program Dev.	Planning & Admin.	Monitoring & Eval.						Total Resource Cost	Program Benefits		Energy Savings MWh
	(\$000s)														
<b>Residential</b>															
Home Improvements Program	355	34	89	6	35	19	538	542	1,080	1,742	3,692	1.6	0.5	3.2	
Low Income	142	21	82	2	14	7	268	93	361	356	1,447	1.0	0.4	6.2	
Residential Lighting	84	46	109	5	32	17	293	103	396	857	3,308	2.2	0.6	3.0	
Heat Pumps	350	36	146	4	22	11	569	513	1,082	1,028	2,257	1.0	0.4	5.2	
New Home Program	144	14	46	1	7	3	216	283	500	480	689	1.0	0.5	6.4	
<b>Residential Total</b>	<b>1,076</b>	<b>151</b>	<b>473</b>	<b>18</b>	<b>109</b>	<b>58</b>	<b>1,884</b>	<b>1,535</b>	<b>3,419</b>	<b>4,463</b>	<b>11,393</b>	<b>1.3</b>	<b>0.5</b>	<b>4.2</b>	
<b>Commercial</b>															
Lighting	1,233	338	424	32	198	104	2,329	1,351	3,680	8,387	20,577	2.3	0.5	2.4	
Building and Process Improvement	323	64	219	2	13	7	628	306	938	697	1,386	0.7	0.3	6.9	
Water Handling Infrastructure	176	19	36	3	21	11	267	261	528	860	2,199	1.6	0.4	2.4	
<b>Commercial Total</b>	<b>1,731</b>	<b>421</b>	<b>680</b>	<b>38</b>	<b>232</b>	<b>122</b>	<b>3,224</b>	<b>1,918</b>	<b>5,142</b>	<b>9,944</b>	<b>24,162</b>	<b>1.9</b>	<b>0.4</b>	<b>2.7</b>	
<b>Industrial</b>															
Industrial Efficiency	14	18	96	1	8	4	141	13	154	388	794	2.5	0.6	2.0	
Integrated EMIS	3	0	6	-	-	-	9	-	9	-	-	-	-	-	-
<b>Industrial Total</b>	<b>17</b>	<b>18</b>	<b>102</b>	<b>1</b>	<b>8</b>	<b>4</b>	<b>150</b>	<b>13</b>	<b>163</b>	<b>388</b>	<b>794</b>	<b>2.4</b>	<b>0.6</b>	<b>2.1</b>	
Supporting Initiatives	-	323	335	-	-	-	658	-	658			-	-	-	-
<b>TOTAL</b>	<b>2,824</b>	<b>914</b>	<b>1,589</b>	<b>57</b>	<b>349</b>	<b>184</b>	<b>5,917</b>	<b>3,466</b>	<b>9,383</b>	<b>14,795</b>	<b>36,350</b>	<b>1.6</b>	<b>0.4</b>	<b>3.4</b>	

Note: Minor differences due to rounding

## APPENDIX B DSM INCENTIVE CALCULATION

**Total resource cost (TRC) Net Benefits** are the gross benefits of lifecycle energy and capacity savings less the total resource cost (FortisBC program costs plus customer-incurred costs) for the energy savings measures installed.

The **Base TRC Net Benefits (Base)** are based on a yearly average of actual costs, savings and benefits for the immediately preceding three year period. The costs are escalated to the incentive year dollars and the benefits are priced at the incentive year BC Hydro Rate Schedule 3808.

The **DSM incentive mechanism** measures the variance between the actual TRC Net Benefits (Actual) and the Base TRC Net Benefits (Base) set for each sector for the year. There are different incentive or penalty levels based on the size of the variance for each of the three sectors. Incentives for the sectors are calculated for performances of 100 per cent to 150 per cent of Base. There is no calculation for performance between 90 per cent and 100 per cent of Base for all sectors. Calculations for performance of less than 90 per cent of Base produce negative results. Maximum penalty is applied to performances of less than 50 per cent of Base.

If the sum of the sector incentives or penalties is greater than zero, then that sum is the DSM incentive for FortisBC for the year. If the sum is less than zero, then there is no DSM incentive for FortisBC for the year and no penalty is charged.

The sector incentive rates are determined using the following table:

<b>Incentive Performance Level</b>						
<50%	<70%	<90%	90-100%	>100%	>110%	>120%
<b>DSM Sector Incentive Rates</b>						
-6.0%	-4.5%	-3.0%	0.0%	3.0%	4.5%	6.0%
-4.0%	-3.0%	-2.0%	0.0%	2.0%	3.0%	4.0%
-3.0%	-2.0%	-1.0%	0.0%	1.0%	2.0%	3.0%

## APPENDIX C HISTORICAL SUMMARY OF FORTISBC'S DSM COSTS AND ENERGY SAVINGS

## Historical FortisBC DSM Costs and Energy Savings 2006-2007

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	2006 (Actual)							2007 (Actual)							
	Spend (\$000s)			Energy Savings (MWh)			TRC	Spend (\$000s)			Energy Savings (MWh)			TRC	
	Planned	Actual	Variance	Planned	Actual	Variance	(B/C)	Planned	Actual	Variance	Planned	Actual	Variance	(B/C)	
1	<b>Residential</b>														
2	Home Improvements	63	58	5	200	500	300	2.1	98	78	20	500	500	-	1.5
3	Building Envelope*														
4	Heat Pumps	462	523	(61)	5,600	6,600	1,000	1.2	513	651	(138)	6,200	9,600	3,400	1.6
5	Residential Lighting	167	121	46	2,200	2,500	300	3.4	170	116	54	2,200	2,700	500	5.6
6	New Home Program	304	324	(20)	1,600	1,300	(300)	2.0	424	458	(34)	1,700	2,500	800	2.3
7	Appliances*														
8	Electronics*														
9	Water Heating*														
10	Low Income*														
11	Behavioural*														
12	<i>Residential Total</i>	<b>996</b>	<b>1,026</b>	<b>(30)</b>	<b>9,600</b>	<b>10,900</b>	<b>1,300</b>	<b>1.5</b>	<b>1,205</b>	<b>1,303</b>	<b>(98)</b>	<b>10,600</b>	<b>15,300</b>	<b>4,700</b>	<b>1.9</b>
13	<b>Commercial</b>														
14	Lighting	256	203	53	3,000	3,000	-	3.3	257	240	17	3,000	5,500	2,500	2.8
15	Building and Process Improvement	433	540	(107)	6,200	6,700	500	1.9	469	499	(30)	6,200	4,900	(1,300)	1.5
16	Computers														
17	Municipal**														
18	Irrigation**														
19	<i>Commercial Total</i>	<b>689</b>	<b>743</b>	<b>(54)</b>	<b>9,200</b>	<b>9,700</b>	<b>500</b>	<b>2.2</b>	<b>726</b>	<b>739</b>	<b>(13)</b>	<b>9,200</b>	<b>10,400</b>	<b>1,200</b>	<b>2.0</b>
20	<b>Industrial</b>														
21	Compressed Air	42	45	(3)	400	500	100	1.1	37	30	7	700	400	(300)	1.0
22	EMIS														
22	Industrial Efficiencies	140	114	26	1,200	2,000	800	2.4	131	153	(22)	1,300	1,800	500	1.6
24	<i>Industrial Total</i>	<b>182</b>	<b>159</b>	<b>23</b>	<b>1,600</b>	<b>2,500</b>	<b>900</b>	<b>2.0</b>	<b>168</b>	<b>183</b>	<b>(15)</b>	<b>2,000</b>	<b>2,200</b>	<b>200</b>	<b>1.5</b>
25	<b>Programs Total</b>	<b>1,867</b>	<b>1,928</b>	<b>(61)</b>	<b>20,400</b>	<b>23,100</b>	<b>2,700</b>	<b>-</b>	<b>2,099</b>	<b>2,225</b>	<b>(126)</b>	<b>21,800</b>	<b>27,900</b>	<b>6,100</b>	<b>-</b>
26	Supporting Initiatives	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Planning & Evaluation	367	314	53	-	-	-	-	375	324	51	-	-	-	-
28	<b>Total</b>	<b>2,234</b>	<b>2,242</b>	<b>(8)</b>	<b>20,400</b>	<b>23,100</b>	<b>2,700</b>	<b>1.8</b>	<b>2,474</b>	<b>2,549</b>	<b>(75)</b>	<b>21,800</b>	<b>27,900</b>	<b>6,100</b>	<b>1.9</b>

\* these programs were included in Home Improvements program

\*\* Water Treatment and Wastewater Handling infrastructure were part of Building and Process Improvement

### Historical FortisBC DSM Costs and Energy Savings 2008-2009

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	2008 (Actual)							2009 (Actual)							
	Spend (\$000s)			Energy Savings (MWh)			TRC	Spend (\$000s)			Energy Savings (MWh)			TRC	
	Planned	Actual	Variance	Planned	Actual	Variance	(B/C)	Planned	Actual	Variance	Planned	Actual	Variance	(B/C)	
1	<b>Residential</b>														
2	Home Improvements	135	62	73	385	331	(54)	0.8	273	145	128	1,024	1,032	8	1.4
3	Building Envelope*														
4	Heat Pumps	446	682	(236)	4,889	8,444	3,555	1.4	515	677	(162)	5,642	3,188	(2,454)	0.7
5	Residential Lighting	156	151	5	1,796	2,562	766	4.1	263	306	(44)	2,822	3,349	526	2.8
6	New Home Program	286	340	(54)	1,332	1,596	265	2.8	341	496	(155)	1,216	1,735	518	2.2
7	Appliances*														
8	Electronics*														
9	Water Heating*														
10	Low Income*														
11	Behavioural*														
12	<i>Residential Total</i>	<b>1,023</b>	<b>1,236</b>	<b>(213)</b>	<b>8,401</b>	<b>12,933</b>	<b>4,531</b>	<b>1.7</b>	<b>1,391</b>	<b>1,624</b>	<b>(233)</b>	<b>10,705</b>	<b>9,304</b>	<b>(1,401)</b>	<b>1.3</b>
13	<b>Commercial</b>														
14	Lighting	257	375	(118)	3,000	5,960	2,960	2.4	724	422	302	5,505	7,638	2,133	3.0
15	Building and Process Improvement	497	506	(9)	6,103	5,081	(1,022)	1.6	563	639	(75)	6,095	8,713	2,618	1.8
16	Computers														
17	Municipal**														
18	Irrigation**														
19	<i>Commercial Total</i>	<b>754</b>	<b>881</b>	<b>(127)</b>	<b>9,103</b>	<b>11,042</b>	<b>1,939</b>	<b>1.9</b>	<b>1,287</b>	<b>1,060</b>	<b>227</b>	<b>11,600</b>	<b>16,351</b>	<b>4,751</b>	<b>2.2</b>
20	<b>Industrial</b>														
21	Compressed Air	58	22	36	700	210	(490)	1.2	71	41	30	811	398	(413)	0.9
23	EMIS														
22	Industrial Efficiencies	142	124	18	1,285	3,083	1,798	2.3	274	195	79	2,189	2,305	116	1.6
24	<i>Industrial Total</i>	<b>200</b>	<b>147</b>	<b>53</b>	<b>1,985</b>	<b>3,294</b>	<b>1,309</b>	<b>2.3</b>	<b>345</b>	<b>236</b>	<b>109</b>	<b>3,000</b>	<b>2,703</b>	<b>(297)</b>	<b>1.5</b>
25	<b>Programs Total</b>	<b>1,977</b>	<b>2,264</b>	<b>(287)</b>	<b>19,489</b>	<b>27,268</b>	<b>7,779</b>	<b>-</b>	<b>3,023</b>	<b>2,920</b>	<b>103</b>	<b>25,305</b>	<b>28,358</b>	<b>3,053</b>	<b>-</b>
26	Supporting Initiatives	-	-	-	-	-	-	-	141	141	0	-	-	-	-
27	Planning & Evaluation	378	419	(41)	-	-	-	-	503	402	101	-	-	-	-
28	<b>Total</b>	<b>2,355</b>	<b>2,683</b>	<b>(328)</b>	<b>19,489</b>	<b>27,268</b>	<b>7,779</b>	<b>1.8</b>	<b>3,667</b>	<b>3,464</b>	<b>204</b>	<b>25,305</b>	<b>28,358</b>	<b>3,053</b>	<b>1.7</b>

\* these programs were included in Home Improvements program

\*\* Water Treatment and Wastewater Handling infrastructure were part of Building and Process Improvement

### Historical FortisBC DSM Costs and Energy Savings 2010

	1	2	3	4	5	6	7
	<b>2010 (Actual)</b>						
	Spend (\$000s)			Energy Savings (MWh)			TRC
	Planned	Actual	Variance	Planned	Actual	Variance	(B/C)
1	<b>Residential</b>						
2	294	434	(140)	953	4,948	3,995	3.1
3	Building Envelope*						
4	624	749	(125)	6,377	3,239	(3,138)	1.2
5	243	278	(35)	2,383	2,589	206	2.4
6	254	247	7	1,392	477	(915)	1.1
7	Appliances*						
8	Electronics*						
9	Water Heating*						
10	100	131	(31)	1,000	385	615	0.7
11	Behavioural*						
12	<b>1,515</b>	<b>1,838</b>	<b>(323)</b>	<b>12,105</b>	<b>11,638</b>	<b>764</b>	<b>1.9</b>
13	<b>Commercial</b>						
14	722	526	196	5,304	7,971	2,667	3.5
15	658	597	61	6,751	6,685	(67)	1.5
16	Computers						
17	Municipal**						
18	Irrigation**						
19	<b>1,380</b>	<b>1,123</b>	<b>257</b>	<b>12,055</b>	<b>14,655</b>	<b>2,600</b>	<b>2.1</b>
20	<b>Industrial</b>						
21	87	25	62	938	114	(823)	0.7
23	EMIS						
22	302	216	86	2,412	2,853	441	2.1
24	<b>389</b>	<b>241</b>	<b>148</b>	<b>3,350</b>	<b>2,967</b>	<b>(383)</b>	<b>2.0</b>
25	<b>3,284</b>	<b>3,203</b>	<b>81</b>	<b>27,510</b>	<b>29,261</b>	<b>2,981</b>	<b>2.1</b>
26	148	155	(7)	-	-	-	-
27	519	354	165	-	-	-	-
28	<b>3,951</b>	<b>3,712</b>	<b>239</b>	<b>27,510</b>	<b>29,261</b>	<b>2,981</b>	<b>2.0</b>

\* these programs were included in Home Improvements program

\*\* Water Treatment and Wastewater Handling infrastructure were part of Building and Process Improvement



**APPENDIX D CORRECTED WHOLESALE ACTIVITY 2009 AND 2010****2009 Wholesale Corrected Energy Savings**

<b>Wholesale Activity</b>	<b>GWh</b>	<b>MW</b>	<b>% of GWh</b>
Grand Forks	0.0	0.0	1%
Summerland	0.7	0.1	8%
Nelson	0.8	0.1	9%
Penticton	2.6	0.4	30%
Kelowna	4.7	0.9	53%
<b>Total Savings (Wholesale)</b>	<b>8.8</b>	<b>1.6</b>	<b>100%</b>

**2010 Wholesale Corrected Energy Savings**

<b>Wholesale Activity</b>	<b>GWh</b>	<b>MW</b>	<b>% of GWh</b>
Grand Forks	0.2	0.0	2%
Summerland	0.9	0.1	13%
Nelson	0.8	0.1	11%
Penticton	3.6	0.5	51%
Kelowna	1.6	0.2	23%
<b>Total Savings (Wholesale)</b>	<b>7.0</b>	<b>1.0</b>	<b>100%</b>

**APPENDIX E EXECUTIVE SUMMARY OF COMMERCIAL RETROFIT BUILDING  
IMPROVEMENT PROGRAM MONITORING AND EVALUATION REPORT**