

**2008 REPORT ON
ENERGY CONSERVATION BY
STATE AGENCIES
Executive Order 48**



Submitted by the Department of Mines, Minerals and Energy



Summary

Executive Order 48 (EO-48) establishes a goal that state agencies and institutions are to reduce expenditures for conventional energy by 20 percent of 2006 expenditures. Reductions may be achieved through energy efficiency to reduce energy use, purchases of renewable energy to replace conventional energy purchases, or purchasing conventional energy supplies more cost effectively.

EO 48 states that “the Department of Mines, Minerals and Energy (DMME) shall maintain a system to monitor and report on progress made by state agencies toward reducing from its 2006 baseline energy costs and consumption for state-owned facilities, and provide a report at least annually on its website.” DMME has coordinated with the Department of Accounts and Agency Energy Managers (AEMs) in obtaining FY 2008 energy cost data.

DMME has worked with the Department of General Services and agencies to implement energy savings performance contracts to reduce energy use and bills. Agencies have also taken independent energy efficiency actions to reduce energy use and bills. DMME also has worked with AEMs to implement new natural gas and heating oil procurement practices and electric demand control strategies to reduce expenditures for conventional energy.

Energy costs are also affected by changes in the price of energy. Unit prices for electricity, have steadily risen from FY 2006 to FY 2008. Natural gas, fuel oil, and coal commodity prices increased in FY 2007 and have mitigated some in FY 2008.

The net effect of these actions have resulted in a net reduction of over \$21 million in energy costs from FY 2006 through FY 2008, or 8.7 percent of FY 2006 expenditures.

Of the 154 state agencies, 90 are located in state owned facilities, while the remaining 64 are housed in leased office space and not required to report. Of the 90 agencies in state owned facilities 43 have reported progress toward meeting their energy cost reduction goals. These agencies cumulatively have avoided energy costs of over \$13 million. A listing of each agency’s energy costs for FY 2006 and FY 2008 follows.

In addition to reporting and tracking energy costs by agency, DMME in coordination with the Department of Environmental Quality (DEQ), is also calculating a reduction in greenhouse gas emissions, in the form of carbon dioxide (CO₂) based on the reported energy savings. The tables on page three and four show an agency’s energy cost reduction goal, progress toward achieving that goal, and the CO₂ greenhouse gas avoidance. To date, agencies have avoided over 331 million pounds of greenhouse gas emissions as a result of the energy efficiency improvements taking place across all Commonwealth state-owned facilities.

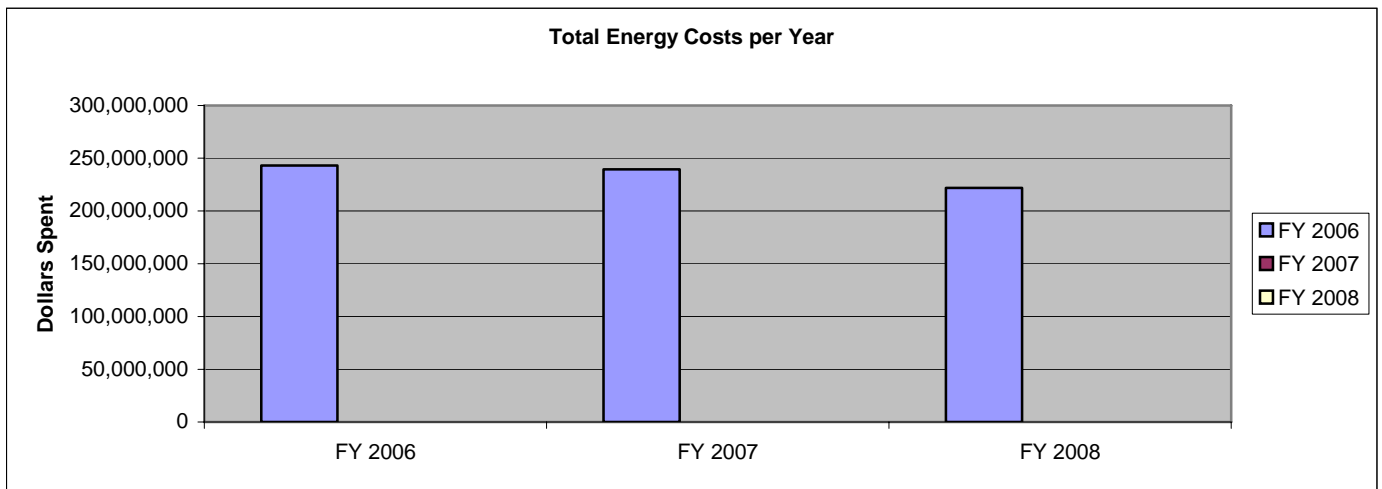
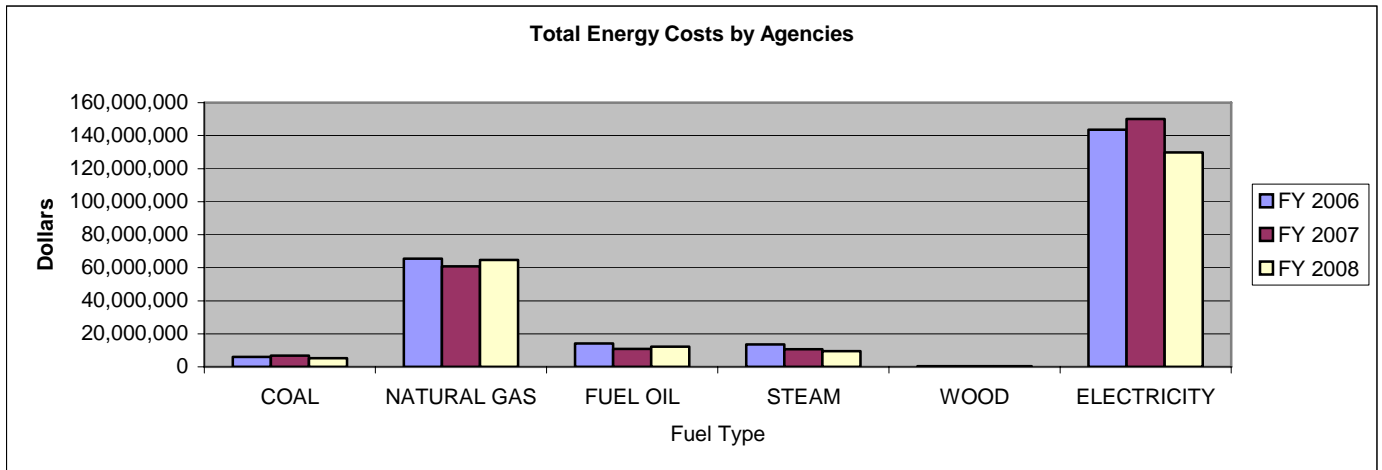
While reports submitted by agencies show significant energy cost reductions are being achieved, some agencies have shown less energy cost reductions over the reporting period. This is attributable to such factors as aggressive energy conservation efforts in years prior to the start of the reporting period limited available savings in the reporting period, construction of new energy intensive facilities such as laboratory space, and other factors.

**Energy Cost for FY2006 & FY2008 for all agencies based on
Department of Accounts Reports**

	COAL	NATURAL GAS	HEATING OIL	STEAM	WOOD	ELECTRICITY	Grand Total
FY 2006	6,067,624	65,549,888	14,104,367	13,473,297	426,177	143,502,979	243,124,331
FY 2007	6,799,842	60,765,473	10,759,529	10,731,780	412,903	150,056,591	239,506,118
FY 2008	5,322,617	64,762,279	12,117,715	9,453,589	469,882	129,761,453	221,887,535
06-08 Difference	745,007	787,609	1,986,652	4,019,708	43,705	13,741,526	21,236,796

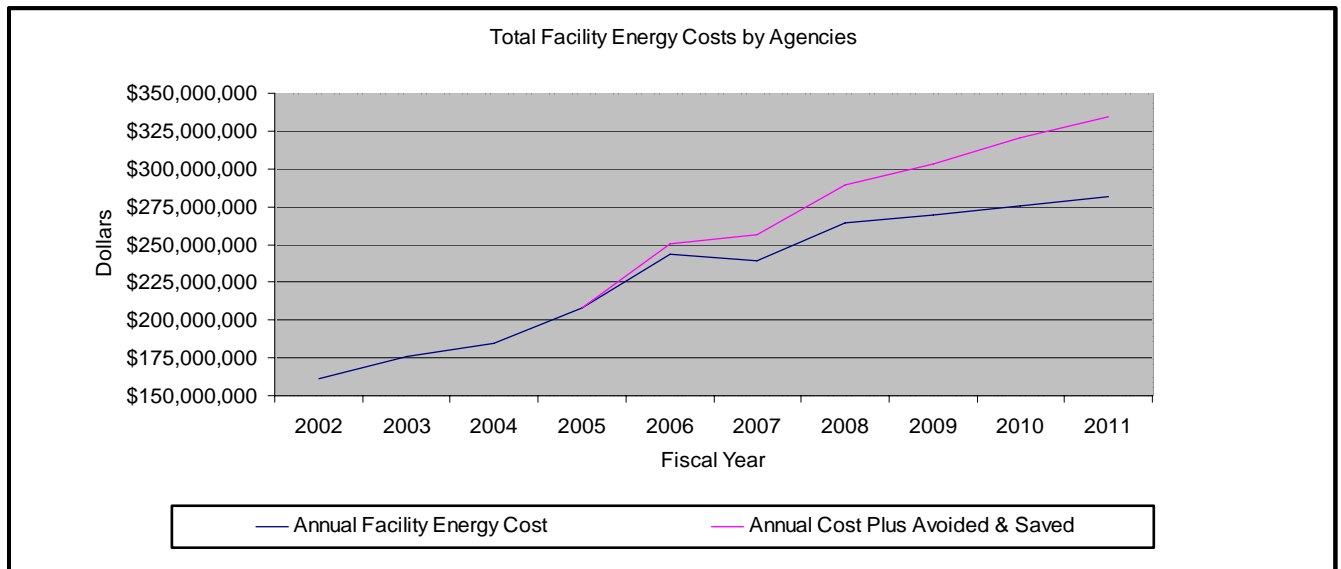
Notes:

1. Weather was not a significant factor in energy costs changes between the FY06 and FY08 reporting period.
2. Electric rate increases overwhelmed the avoided cost for electricity in FY08.
3. Natural gas saw reduced commodity prices while heating oil saw increased commodity prices from FY06 to FY08.
4. Natural gas, heating oil, and steam benefited from improved procurement methods and efficiency.
5. Charter universities stopped reporting energy costs to the Department of Accounts in FY 2008. FY 2008 data are supplied by the Department of Planning and Budget and no longer include indirect costs of operating on-campus energy delivery systems (pipes, electric lines, transformers, etc.).

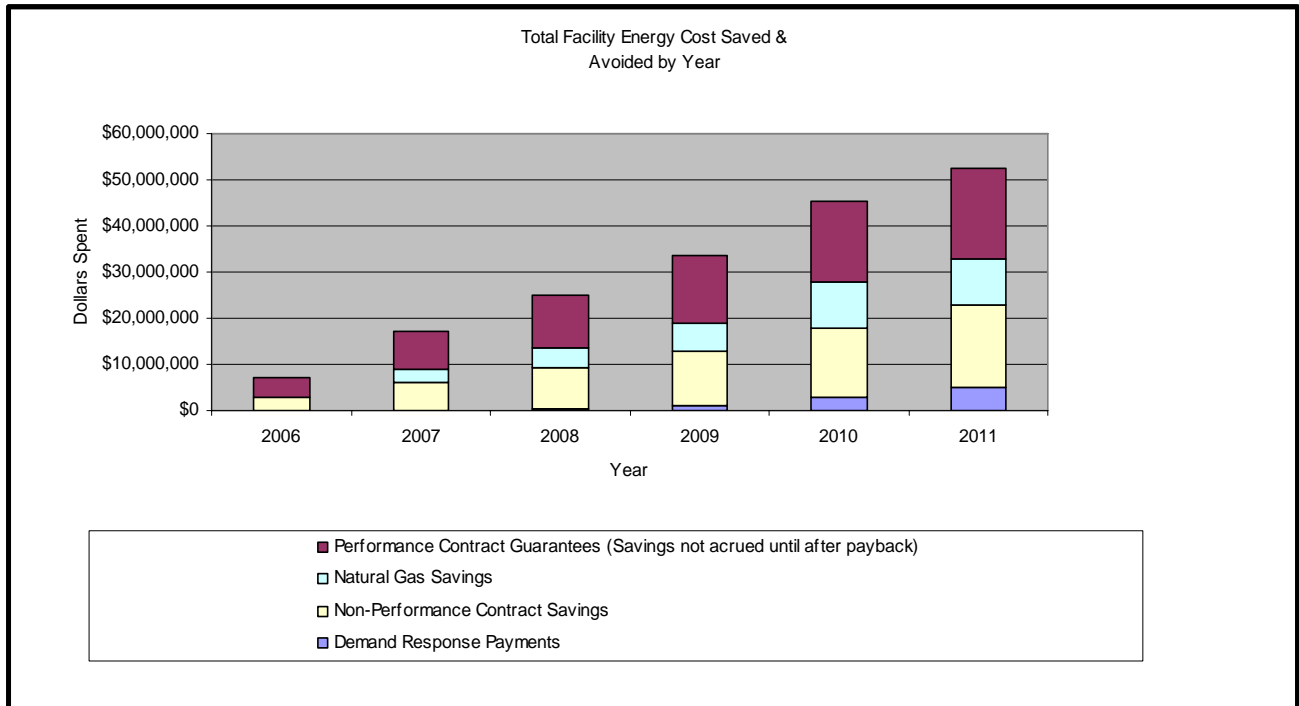


Facility Energy Cost Savings & Avoidances – Actual and Projections

Facility Energy Costs Based on Department of Accounts with Escalation								
FY	COAL	NATURAL GAS	FUEL OIL	STEAM	WOOD	ELECTRICITY	Actual Total	Actual Total Plus Avoided & Saved
2002	\$4,415,295	\$24,932,681	\$4,282,159	\$4,516,517	\$363,580	\$123,071,071	\$161,581,303	
2003	\$4,247,158	\$33,610,413	\$7,641,546	\$4,308,555	\$285,033	\$125,875,819	\$175,968,523	
2004	\$4,558,747	\$39,314,281	\$8,109,102	\$6,571,215	\$338,827	\$125,817,958	\$184,710,130	
2005	\$5,699,685	\$49,225,701	\$10,541,216	\$7,387,112	\$384,030	\$134,560,381	\$207,798,125	207,798,125
2006	\$6,067,624	\$65,549,888	\$14,104,367	\$13,473,297	\$426,177	\$143,502,979	\$243,124,331	250,124,331
2007	\$6,779,842	\$60,765,473	\$10,759,529	\$10,731,780	\$412,903	\$150,056,591	\$239,506,118	256,506,118
2008	\$7,336,572	\$57,856,971	\$16,049,241	\$9,453,589	\$469,882	\$173,174,970	\$264,341,225	289,241,225
2009	\$6,969,743	\$59,303,395	\$16,851,703	\$9,926,268	\$446,388	\$175,945,770	\$269,443,268	302,943,268
2010	\$6,830,349	\$61,438,318	\$17,694,288	\$10,422,582	\$437,460	\$178,584,956	\$275,407,952	320,907,952
2011	\$6,693,742	\$63,650,097	\$18,579,003	\$10,943,711	\$428,711	\$181,263,730	\$281,558,993	334,058,993



Facility Energy Cost Savings/Avoidance Based on Agency Reports					
	Savings	Savings	Avoided Cost	Avoided Cost	Total
	Demand	Performance	Non-Performance	Natural Gas	Saved
FY	Response	Contract Guarantees	Contracts	Procurement	& Avoided
2006	\$0	\$4,000,000	\$3,000,000	\$0	\$7,000,000
2007	\$0	\$8,000,000	\$6,000,000	\$3,000,000	\$17,000,000
2008	\$400,000	\$11,500,000	\$9,000,000	\$4,000,000	\$24,900,000
2009	\$1,000,000	\$14,500,000	\$12,000,000	\$6,000,000	\$33,500,000
2010	\$3,000,000	\$17,500,000	\$15,000,000	\$10,000,000	\$45,500,000
2011	\$5,000,000	\$19,500,000	\$18,000,000	\$10,000,000	\$52,500,000



Terms: Cost Avoidance – When savings accrue to the Commonwealth reducing budget dollars prior to budget approval.

Examples – Non Performance Contracts and Natural Gas Procurement savings.

Savings – When a savings accrue to the Commonwealth after a budget is in place.

Examples – Performance Contracts and Demand response savings.

Notes: Facility energy cost data are actual for FY 2002 through FY 2008 and projections based on energy escalation factors for FY 2009 through 2011.

Facility energy cost data do not include future increases due to increased square footage added from new buildings and additions.

Energy efficiency as a result of performance contracting will not show an actual dollar savings until the end of the contract term – an average of 12 years, unless actual savings exceed guaranteed savings. Excess savings will be reflected in a lower energy bill in the year when they occur.

Energy efficiency as a result of non-performance contracting efforts has an immediate impact on budgets. This includes improved operation and maintenance, maintenance reserve and operational funded improvements.

Procurement activities have an immediate impact on budgets and when costs are reduced more than increases, a net savings occur.

Demand Response savings are in the form of payments directly to agencies.

Reduction in non-performance contract energy efficiency for FY 2009-2011 is based on fewer maintenance reserve dollars being available.

Energy escalation factors vary annually and are from local utilities, marketers and the Energy Information Administration.

In April of 2008 natural gas peaked at \$13.69 per million BTU's for Henry Hub delivery before falling. Lower natural gas prices reduce energy costs but limit the savings benefits of improved procurement.

Charter Universities were not required to report energy costs to the Department of Accounts beginning in FY 2008. FY 2008 costs for Virginia Tech and University of Virginia as supplied by the Department of Planning and Budget did not include indirect costs of operating on-campus energy delivery systems (pipes, electric lines, transformers, etc) which were included in prior years. These costs were estimated for FY 2008 based on costs from prior years.

EO-48 Report by Agency

Agency #	AGENCY	FY06 ENERGY COSTS*	EO48 GOAL*	FY08 Fuel Cost Reduction	% of goal met FY 07	% of goal met FY 08	% of Goal Met YTD	Greenhouse Gas Emissions Avoided (lbs of CO ₂)** FY 08
291	Blue Ridge Community College	\$214,267	\$32,140	\$0	0%	0%	0%	-
724	Catawba Hospital	\$529,859	\$105,972	\$81,375	11%	77%	88%	2,022,983
292	Central Virginia Community College	\$375,605	\$75,121	\$104,908	16%	140%	156%	2,608,013
707	Central Virginia Training Center	\$2,262,297	\$452,459	\$561,334	15%	124%	139%	13,954,763
**242	Christopher Newport University	\$2,520,609	\$504,122	\$0	0%	0%	0%	-
204	College of William & Mary	\$6,134,476	\$1,226,895	\$109,400	47%	9%	56%	2,719,684
287	Dabney S. Lancaster Community College	\$191,062	\$38,212	\$0	0%	0%	0%	-
279	Danville Community College	\$382,269	\$57,340	\$78,445	104%	137%	241%	1,950,143
301	Department of Agriculture & Consumer Svcs	\$243,296	\$48,659	\$0	0%	0%	0%	-
999	Department of Alcoholic Beverage Control	\$1,836,230	\$275,435	\$0	0%	0%	0%	-
841	Department of Aviation	\$29,400	\$4,410	\$0	0%	0%	0%	-
199	Department of Conservation and Recreation	\$1,056,964	\$211,393	\$9,757	0%	5%	5%	242,559
**701	Department of Corrections	\$20,828,009	\$3,124,201	\$0	9%	0%	9%	-
**140	Department of Criminal Justice Services	\$661,306	\$132,261	\$0	0%	0%	0%	-
778	Department of Forensic Science	\$1,152,769	\$230,554	\$0	0%	0%	0%	-
**411	Department of Forestry	\$297,383	\$44,607	\$0	0%	0%	0%	-
403	Department of Game and Inland Fisheries	\$371,878	\$74,376	\$0	0%	0%	0%	-
194	Department of General Services	\$7,775,415	\$1,166,312	\$219,973	1%	19%	20%	5,468,529
777	Department of Juvenile Justice	\$1,970,004	\$394,001	\$0	0%	0%	0%	-
123	Department of Military Affairs	\$737,760	\$147,552	\$355,568	6%	241%	247%	8,839,420
409	Department of Mines, Minerals and Energy	\$52,695	\$7,904	\$0	47%	0%	47%	-
154	Department of Motor Vehicles	\$773,020	\$154,604	\$32,178	3%	21%	24%	799,945
156	Department of State Police	\$1,244,666	\$248,933	\$0	0%	0%	0%	-
702	Department of the Blind and Vision Impaired	\$224,807	\$44,961	\$0	0%	0%	0%	-
501	Department of Transportation	\$12,859,852	\$2,571,970	\$14,907	0%	1%	1%	370,588
912	Department of Veterans Services	\$385,195	\$77,039	\$0	0%	0%	0%	-
**284	Eastern Shore Community College	\$73,565	\$14,713	\$0	0%	0%	0%	-
704	Eastern State Hospital	\$1,897,531	\$284,630	\$305,599	0%	107%	107%	7,597,191
239	Frontier Culture Museum	\$33,195	\$4,979	\$3,840	0%	77%	77%	95,462
**247	George Mason University	\$7,921,629	\$1,188,244	\$0	74%	0%	74%	-
297	Germanna Community College	\$405,316	\$60,797	\$0	0%	0%	0%	-
**417	Gunston Hall Plantation	\$76,820	\$15,364	\$0	0%	0%	0%	-
283	J. Sargeant Reynolds Community College	\$733,520	\$146,704	\$2,366	2%	2%	4%	58,819
216	James Madison University	\$11,420,968	\$1,713,145	\$1,185,051	15%	69%	84%	29,460,368
425	Jamestown-Yorktown Foundation	\$609,649	\$121,930	\$0	0%	0%	0%	-
290	John Tyler Community College	\$450,611	\$90,122	\$67,916	57%	75%	132%	1,688,392
214	Longwood University	\$1,329,998	\$199,500	\$317,975	13%	159%	172%	7,904,859
298	Lord Fairfax Community College	\$166,109	\$33,222	\$16,237	5%	49%	54%	403,652
299	Mountain Empire Community College	\$166,109	\$33,222	\$0	0%	0%	0%	-

Agency #	AGENCY	FY06 ENERGY COSTS*	EO48 GOAL*	FY08 Fuel Cost Reduction	% of goal met FY 07	% of goal met FY 08	% of Goal Met YTD	Greenhouse Gas Emissions Avoided (lbs of CO ₂)** FY 08
275	New River Community College	\$383,290	\$57,494	\$74,332	59%	129%	188%	1,847,894
213	Norfolk State University	\$2,488,230	\$373,235	\$886,617	25%	238%	263%	22,041,299
**280	Northern Virginia Community College	\$2,394,098	\$359,115	\$0	0%	0%	0%	-
728	Northern Virginia Mental Health Institute	\$273,975	\$54,795	\$0	0%	0%	0%	-
725	Northern Virginia Training Center	\$481,320	\$96,264	\$0	25%	0%	25%	-
221	Old Dominion University	\$4,795,362	\$719,304	\$425,913	146%	59%	205%	10,641,227
285	Patrick Henry Community College	\$297,350	\$44,603	\$80,085	146%	180%	326%	1,990,913
277	Paul D. Camp Community College	\$207,158	\$41,432	\$8,317	0%	20%	20%	206,761
729	Piedmont Geriatric Hospital	\$366,522	\$73,304	\$501,142	376%	684%	1060%	5,553,249
282	Piedmont Virginia Community College	\$325,802	\$65,160	\$66,545	0%	102%	102%	1,654,309
217	Radford University	\$3,570,619	\$714,124	\$530,296	7%	74%	81%	13,183,159
**278	Rappahannock Community College	\$183,827	\$36,765	\$0	0%	0%	0%	-
241	Richard Bland College	\$189,512	\$28,427	\$0	0%	0%	0%	-
**146	Science Museum of Virginia	\$370,365	\$55,555	\$0	11%	0%	11%	-
723	Southeastern Virginia Training Center	\$408,495	\$81,699	\$789	2%	1%	3%	19,615
739	Southern Virginia Mental Health Institute	\$181,814	\$36,363	\$0	0%	0%	0%	-
276	Southside Virginia Community College	\$192,957	\$38,591	\$16,648	18%	43%	61%	413,869
726	Southside Virginia Training Center	\$3,505,660	\$701,132	\$1,711,051	150%	244%	394%	42,536,728
294	Southwest Virginia Community College	\$362,625	\$54,394	\$14,774	0%	27%	27%	367,282
**948	Southwest Virginia Higher Education Ctr	\$121,840	\$18,276	\$46,585	237%	255%	492%	1,158,103
705	Southwestern Virginia Mental Health Institute	\$629,518	\$125,904	\$8,824	115%	7%	122%	9,248,993
738	Southwestern Virginia Training Center	\$427,679	\$85,536	\$10,936	168%	13%	181%	271,869
293	Thomas Nelson Community College	\$478,925	\$95,785	\$0	111%	0%	111%	-
295	Tidewater Community College	\$1,724,113	\$344,823	\$0	0%	0%	0%	-
215	University of Mary Washington	\$2,885,381	\$577,076	\$382,490	52%	66%	118%	9,508,701
207	University of Virginia	\$26,119,071	\$5,223,814	\$1,786,742	27%	34%	61%	44,418,406
236	Virginia Commonwealth University	\$8,119,101	\$1,623,820	\$1,007,713	18%	62%	80%	25,051,745
**182	Virginia Employment Commission	\$813,352	\$162,670	\$0	0%	0%	0%	-
296	Virginia Highlands Community College	\$171,867	\$34,373	\$39,700	97%	115%	212%	986,942
268	Virginia Institute of Marine Science	\$789,492	\$157,898	\$0	0%	0%	0%	-
211	Virginia Military Institute	\$2,021,910	\$303,287	\$58,246	0%	19%	19%	1,447,996
238	Virginia Museum of Fine Arts	\$873,581	\$131,037	\$0	0%	0%	0%	-
**942	Virginia Museum of Natural History	\$24,981	\$3,747	\$0	0%	0%	0%	-
**766	Virginia Parole Board	\$698,389	\$139,678	\$0	0%	0%	0%	-
218	Virginia School for the Deaf & Blind	\$270,777	\$40,617	\$55,673	112%	137%	249%	1,384,031
219	Virginia School for the Deaf, Blind, & Multiple Disabled	\$221,826	\$33,274	\$0	0%	0%	0%	-
212	Virginia State University	\$2,568,180	\$385,227	\$482,645	57%	125%	182%	11,998,555
208	Virginia Tech	\$15,400,000	\$2,310,000	\$1,020,628	1%	44%	45%	25,372,812
286	Virginia Western Community College	\$572,057	\$85,809	\$56,713	0%	66%	66%	1,409,885
706	Western State Hospital	\$1,198,891	\$179,834	\$125,404	22%	70%	92%	3,117,543

Agency #	AGENCY	FY06 ENERGY COSTS*	EO48 GOAL*	FY08 Fuel Cost Reduction	% of goal met FY 07	% of goal met FY 08	% of Goal Met YTD	Greenhouse Gas Emissions Avoided (lbs of CO ₂)** FY 08
203	Woodrow Wilson Rehabilitation Ctr	\$859,015	\$171,803	\$118,859	78%	69%	147%	2,954,835
288	Wytheville Community College	\$258,219	\$51,644	\$0	0%	0%	0%	-
TOTALS		\$178,623,259	\$31,275,693	\$13,263,023	23%	42%	65%	331,896,257
								Metric Tons of Carbon Equivalent (MTCE):
								150,547

* Data based on reports from the Department of Accounts and DMME's Energy Tracker Database
 ** CO₂ calculation derived from the Department of Environmental Quality

Factors used for calculations:
 Natural Gas (therms) - ave. cost FY08: \$10.37/therm
 Heating Oil - ave cost FY08: \$2.13/gal
 Electricity (kWh) - ave. cost FY08: .0539/kWh

Fuel Type	Carbon Emission Conversion Factors Pounds CO ₂ per Unit			
Natural Gas	120.593/1000 ft ³			
Fuel Oil	22.384/gal			
Electricity	1.243lbs/kWh			

Note to Agencies: Agencies located in leased office space are exempt from reporting; therefore are not listed here.

** Agencies that did not submit report