

Capstone Paper

Smart Grid and Pepco Holdings, Inc:

*A Holistic Analysis with Direct Recommendations*

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General University Honors



## **EXECUTIVE SUMMARY**

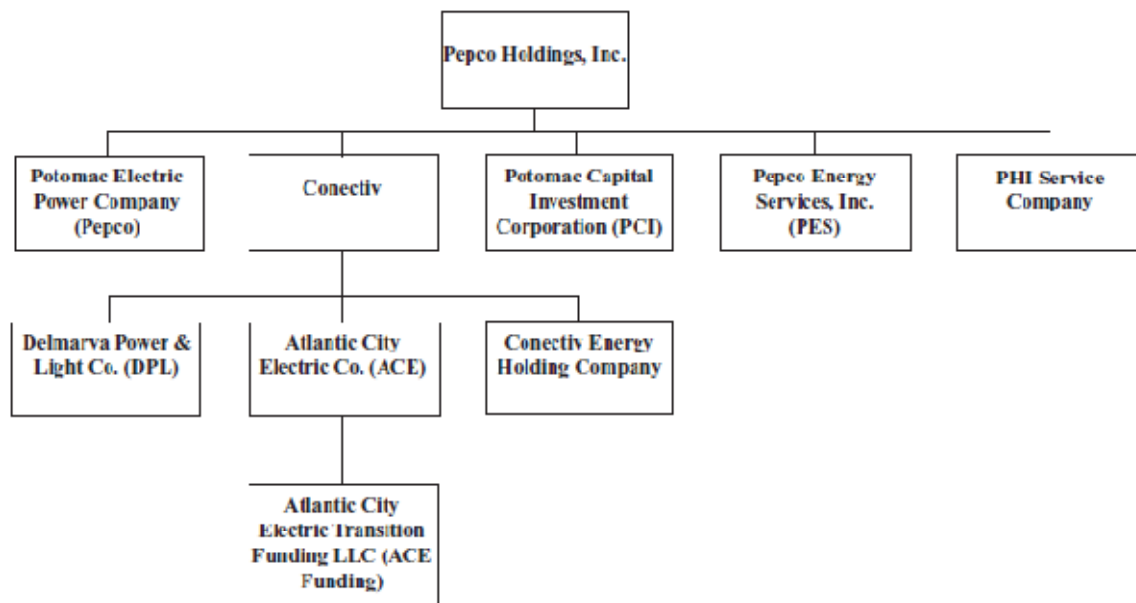
Smart Grid technology represents one of the most significant opportunities for utilities companies and governments to improve their infrastructure and increase power efficiency. Pepco Holdings, Inc. (PHI) is already starting to take advantage of Smart Grid, the most significant opportunity in the power and utility industries in decades, by securing federal grant funding and partnerships with Smart Grid companies. However, PHI's leadership can take additional steps to ensure that the company's strategy meets with success in the future by taking the following steps:

- Produce infrastructure and programs to anticipate new developments:
  - Plug-in electric vehicles
  - Consumer driven renewable energy
  - Wi-Max grid communication
  - Smart phone controlled appliances
- Market, develop and price the rollout of Smart Grid technologies with consumer tastes, preferences, and engagement in mind
- Carefully plan the rollout of smart meters, taking into account the mistakes made by other electricity providers

I examine different market forces that affect the implementation of Smart Grid technology and utilize cases of both successful and less successful Smart Grid around the United States and the world.

## PEPCO HOLDINGS, INC. OVERVIEW

Pepco Holdings, Inc. (abbreviated PHI, stock symbol POM) is in the business of power generation and distribution in the mid-Atlantic region of the United States. PHI services parts of New Jersey, Maryland, Washington, DC, and Delaware (See Figure 1) with consumer electricity through its regulated public utility subsidiaries, Delmarva Power, Atlantic City Electric, and



### Corporate Structure<sup>1</sup>

Pepco. Pepco Holdings also owns Conectiv Energy, Pepco Energy Services and Potomac Capital Investment. Conectiv and Pepco Energy Services both operate in the deregulated energy space, with Conectiv operating on the wholesale purchasing and sales level and Pepco Energy Services providing energy for residential and business customers directly. Potomac Capital Investment is PHI's portfolio management arm, focusing on energy leveraged leases. Each of these business areas are managed according to the company's vision statement:

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<sup>1</sup> Pepco Holdings, Inc Annual Report. 2009.

*“To be the premier energy delivery and services company in the mid-Atlantic region through employees focused on customer service, reliability and profitability. PHI engages in a flexible business strategy centered on opportunities in our field of expertise: energy.”*<sup>2</sup>

While PHI’s business areas may seem diverse, they lend to specific core competencies that have been developed within the company. The company has created elements of vertical integration in its regulated electricity markets by purchasing generation capacity while owning the distribution and customer interaction processes. Figure 1<sup>3</sup> shows the areas that Pepco exists in the Mid-Atlantic.



PHI takes advantage of barriers to entry, green initiatives, and adoption of new technologies to stay ahead of the competition. Often consumers are only presented with one power utility choice, as utilities have high fixed costs, infrastructure requirements, and regulatory hurdles for power generation and distribution, conditions that are conducive to the creation of a natural monopoly. In order to succeed in the power generation and distribution businesses,

<sup>2</sup> <http://www.pepcoholdings.com/about/>

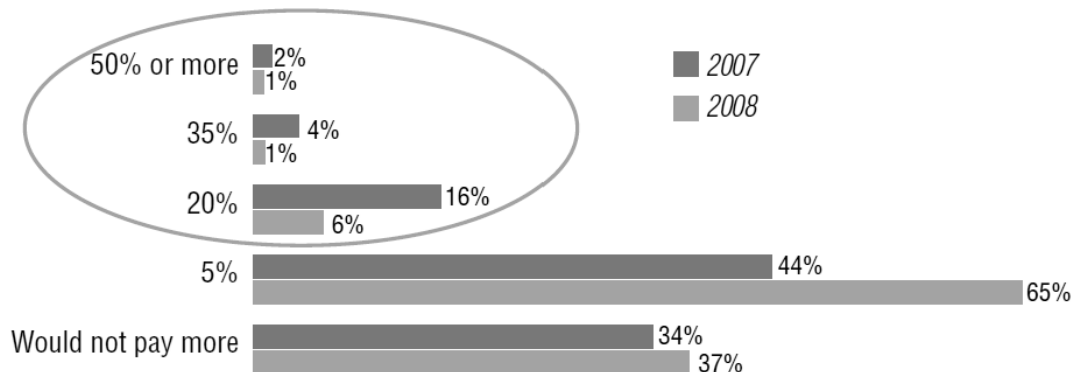
<sup>3</sup> Ibid.

economies of scale must be created. By reaching more and more customers, both commercial and residential, incremental increases in variable costs are trumped by greater increases in revenue.

Power utilities, including PHI, have been adversely affected by the economic downturn.

### **Willingness to pay premiums for green energy.**

*How much more would you be willing to pay for green power? (percentage of respondents)*



*Sample size = 5084*

*Source: IBM 2008 Utility Consumer Survey.*

Consumers are now unwilling to pay more for energy, and even less willing to pay extra for environmentally friendly electricity options (See Figure 2<sup>4</sup>). Additionally, rising natural resource costs and greater instability of supply and prices of oil and natural gas have created volatility in the industry.

PHI's strategy is to vertically integrate power generation, transportation, and distribution through acquisitions and new projects within its current limited geographic areas and seek to create greater customer satisfaction among existing customers through renewable energy offerings and increased customer interaction. The key assets required to achieve these goals in this industry are

<sup>4</sup> Utility Customer Survey. IBM. 2008.

power plants, transformers, and power lines. PHI has confined its geographic influence in order to build and purchase these expensive items and develop its reputation as a solid provider on all levels.

PHI made over \$10 billion in revenues in 2008, over \$1 billion more than the year before. PHI makes about half of its revenues from its power delivery business and half from the competitive energy business. Rising fuel prices helped to push PHI's net income down by \$34 million from 2007 to 2008. PHI needs to target fuel prices by increasing its reliance on renewable energy sources and nuclear power generation while making its operations more efficient by implementing Smart Grid initiatives. Recently, PHI has issued a quarterly dividend of 27 cents per share. PHI's stock was increasing fairly steadily until 2007, when the energy price spike merged with the US recession to push the stock price down nearly in line with the percentage changes to the S&P 500.

PHI's three primary competitors, Allegheny Energy Inc (AYE), Public Service Enterprise Group (PEG) and Constellation Energy Group (CEG), have all suffered during the economic downturn, with each company's stock dropping by over 35% since the start of 2008. PHI competes with these firms in the competitive electricity markets, as their respective regulated territories are not often up for re-negotiation with state and local governments.

PHI faces the challenge of spending its stimulus allocation wisely to successfully implement Smart Grid initiatives across its business lines. Management is under tremendous pressure not to

alienate customers while becoming more efficient, cost effective and profitable through these initiatives.

## **SMART GRID BACKGROUND**

“Smart Grid” is a term that refers to the development of a more secure, interactive, and reliable power generation and distribution network. The US Department of Energy has defined the requirements for the modern Smart Grid, to include requirements such as consumer participation, resistance against cyber attacks, and the ability to heal itself (See Figure 3 for full list). Today’s grid is extraordinarily inefficient: “According to research sponsored by the U.S. Government, improving the efficiency of the national electricity grid by 5 percent would be the equivalent of eliminating the fuel use and carbon emissions of 53 million cars.”<sup>5</sup>

### ***Stakeholders***

Stakeholders in the United States Smart Grid effort include local, state and the federal governments, consumers, power utilities, appliance manufacturers, plug-in hybrid vehicle manufacturers, electricity meter manufacturers, and technology conglomerates like IBM and Google. Each of these entities has different goals and priorities, but each stands to benefit from the implementation of a smarter power grid.

### ***Advantages***

Customers stand to benefit from new proposed pricing structures associated with Smart Grid. Smart meters are installed in place of traditional analog electricity meters in homes and

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<sup>5</sup> <http://www.cnn.com/2009/TECH/03/01/eco.smartgrid/index.html>



businesses, and allow real time communication between a utility, the device and the consumer. With the creation of two-way communication, utility companies and consumers gain access to real time usage and pricing statistics and consumers can plan the usage of their high electricity drain appliances for off-peak hours. Electricity costs are lower during times when there is less demand and power utilities are excited about the prospect of flattening the spikes in electricity usage so they do not need to hold excess generation capacity for those times.

Additional security and reliability is associated with the software and hardware of Smart Grid. With real time usage statistics from meters, utilities can predict when peak times will test their generation capacities. In addition, America's power grid is very susceptible to an attack from a government or terrorist organization and components of the Smart Grid would help to defend against such attacks.<sup>6</sup>

Other supply side improvements include "smart substations" and "smart transformers". These innovations will allow power companies to replace old equipment before it fails and react more quickly to power failures. From the consumer's perspective, smart thermostats, washing machines, dryers and other appliances will start to interact with power companies based upon instantaneous pricing to save people money.<sup>7</sup>

### ***Challenges***

While the benefits of Smart Grid have been clearly articulated, the costs of the effort cannot be discounted. Utilities face high implementation, maintenance, and customer service costs as they

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<sup>6</sup> <http://online.wsj.com/article/SB123914805204099085.html>

<sup>7</sup> <http://www.energy.gov/news2009/8216.htm>

try to install effective smart meter systems with their constituencies. In the difficult credit environment that companies face today, acquiring the financing required to implement Smart Grid initiatives is very difficult. Utilities also face the challenge of explaining to a cost sensitive and often apathetic customer base how Smart Grid, smart metering, and load-based pricing can help them.

Utility companies have traditionally been resistant to change, with executives accepting their comfortable regulatory monopolies and resigning themselves to a consistent profit. Today, however, utilities must embrace sweeping changes in their industry to survive. The federal government's stimulus funding served as a mandate for utility companies to put together plans for Smart Grid initiatives. Even utilities that did not receive dedicated federal funds have an incentive to improve their power transmission and distribution through Smart Grid, but the traditional change resistant culture still prevails at some firms.

### ***Existing Smart Grids***

While in many cities across the US Smart Grid seems like long term, futuristic concept, it has already become a reality in some countries and American cities. Italy, for example, implemented a sweeping smart meter program that has helped create a more efficient grid since the early 2000's.<sup>8</sup> One of the first attempts to implement a Smart Grid in the United States was undertaken Western Massachusetts Electric Co. and resulted in a failure that other utilities companies should take note of. This particular company targeted low income customers with a pre-payment plan in combination with smart metering. However, the plan was in violation of certain Massachusetts

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<sup>8</sup> <http://www.greentechmedia.com/articles/read/notes-from-a-national-smart-grid-experiment-5998/>

laws that protects people from electricity shut-offs and needed to be reworked.<sup>9</sup> This utility's experience underscores the necessity of prior preparation and understanding the fears, needs and demands of every stakeholder throughout the process.

## PHI SMART GRID

Pepco Holdings, Inc has already recognized the necessity of implementation of a Smart Grid and taken several important steps along the way. In PHI's "Blueprint for the Future", the company established Smart Grid as a priority for development in the next few years. Figure 3 illustrates the importance of every utility adopting a Smart Grid strategy.

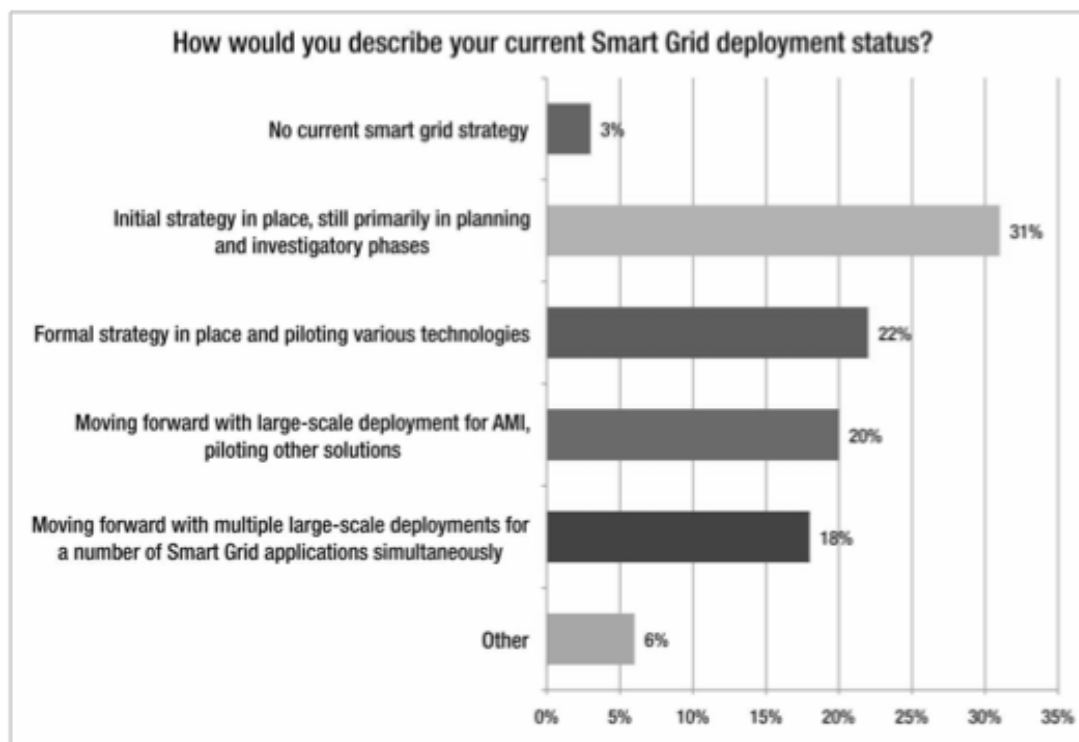


Figure 3<sup>10</sup>

<sup>9</sup>

[http://www.boston.com/business/articles/2009/07/23/mass\\_rejects\\_utilitys\\_prepayment\\_plan\\_for\\_low\\_income\\_customers/](http://www.boston.com/business/articles/2009/07/23/mass_rejects_utilitys_prepayment_plan_for_low_income_customers/)

<sup>10</sup> GTM Research 2010.

## *Partnerships*

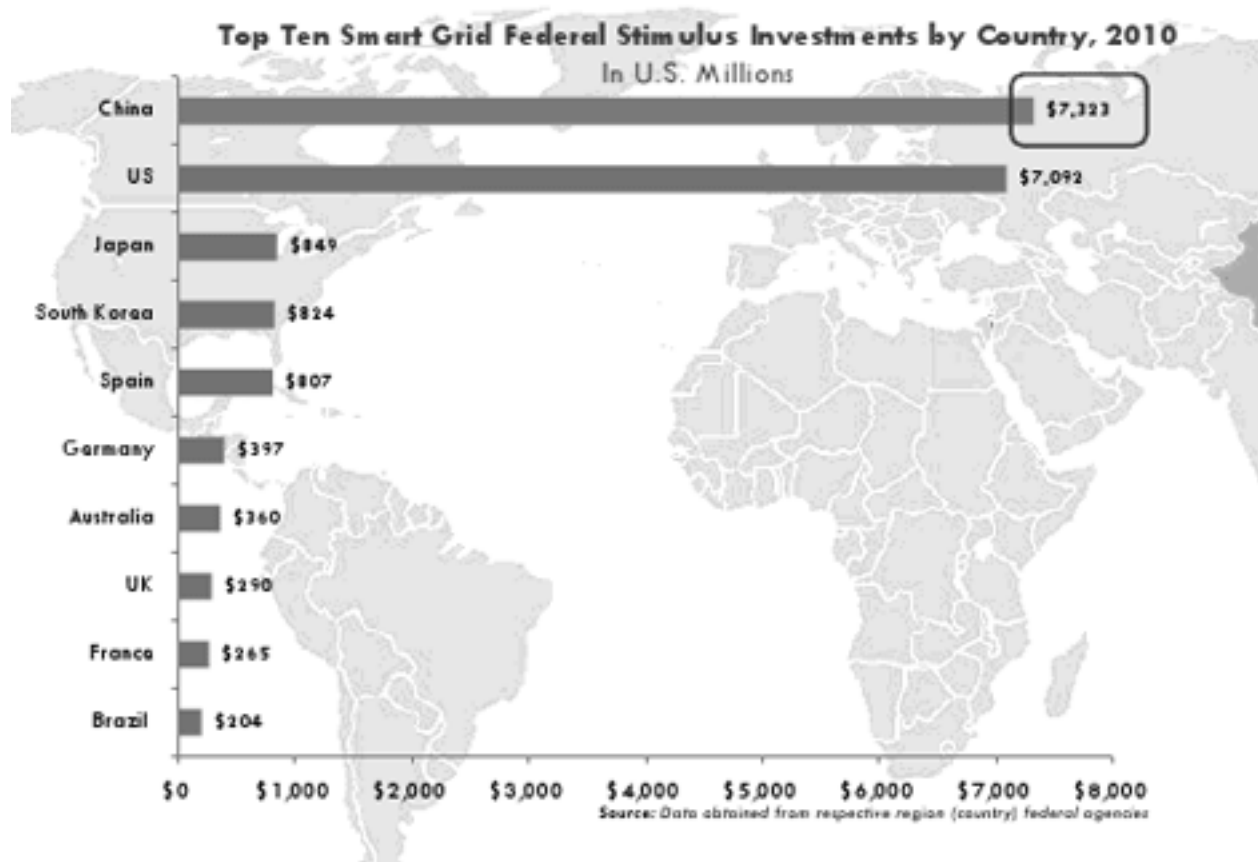
PHI joined IBM's Intelligent Utility Network, a group of business stakeholders in Smart Grid from around the United States and the world. PHI's involvement with IBM gives the utility access to IBM's unprecedented research into consumer reactions to different Smart Grid implementation strategies, in addition to IBM's broader knowledge of technology systems integration.<sup>11</sup> Additionally, PHI has named Converge, Inc. as their supplier for "Dual Mode Digital Control Units" (smart meters) as well as its SuperStat Pro programmable thermostats, all of which will be controlled by Converge's Apollo Demand Response Management System.<sup>12</sup> PHI is spending their newly won stimulus dollars on the contracts.

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<sup>11</sup> [http://www.ibm.com/smarterplanet/us/en/smart\\_grid/ideas/](http://www.ibm.com/smarterplanet/us/en/smart_grid/ideas/)

<sup>12</sup> <http://www.marketwatch.com/story/comverge-expands-contract-with-pepco-holdings-inc-2010-02-04>

## *Federal Stimulus*



**Figure 4**

PHI applied for and subsequently received funding from the American Recovery and Reinvestment Act (ARRA) for Smart Grid in its Maryland, Washington, DC, and New Jersey markets. These grants, totaling \$168 million, must be applied toward the purchase and implementation of smart meters, load control devices, intelligent grid sensors, automation technology, and communications infrastructure.<sup>13</sup> Figure 4<sup>14</sup> demonstrates the significant commitment of the US government to Smart Grid, particularly as compared to other countries.

<sup>13</sup> <http://www.pepco.com/welcome/news/releases/archives/2009/article.aspx?cid=1271>

<sup>14</sup> [www.treehugger.com](http://www.treehugger.com)

## RECOMMENDATIONS

### *Customer Focus*

The most important component of Smart Grid implementation for PHI is their approach to marketing, development and pricing for consumers. If Smart Grid is interpreted as a negative change by consumers, the backlash could create serious problems for its implementation. Therefore, PHI's utility subsidiaries need to create a consistent and market research-tested strategy for Smart Grid introduction to consumers. Recently, PHI conducted a smart meter pricing pilot test in Washington, DC. Three pricing plans were tested, one in which customers paid the instantaneous wholesale price of electricity, another in which customers paid a very high "critical peak price" during certain hours and a low price at other times, and the last plan reimbursed customers significantly for energy saved compared to previous months and charged a low fixed amount for electricity used.<sup>15</sup> While the most dramatic improvements in behavior were realized through critical peak pricing model, Pepco indicated that it would probably use the reimbursement model when it implemented smart metering on a larger scale. While PHI was wise to test these pricing models on consumers before a wider rollout, confining consumers to the least effective of these options is not the correct choice. Pepco should design different pricing options similar to those it piloted in Washington and offer consumers a choice between them. Some consumers have a greater ability to change the times that they use more power and others are in a better position to reduce their power consumption in general. In order to avoid confusion

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<sup>15</sup>

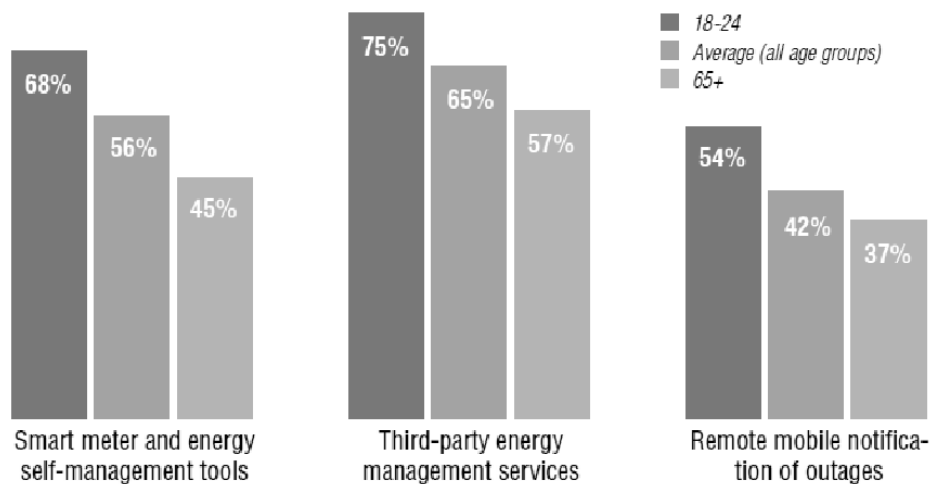
[http://online.wsj.com/article/SB10001424052748704878904575031020562238094.html?ru=yahoo&mod=yahoo\\_hs](http://online.wsj.com/article/SB10001424052748704878904575031020562238094.html?ru=yahoo&mod=yahoo_hs)

among its customers about pricing, however, these options should be very simple and should be explained in very simple terms. Additionally, the program should be marketed through radio and newspaper media in the areas that PHI serves to makes consumers even more aware of these initiatives and the positive effects they will have.

Another method to increase consumer control of their energy costs and power usage is software that connects each customer to their appliances, thermostat, and instantaneous energy costs through their computer or smart phone. That way, consumers can react quickly to changes in energy costs, even when they are not at home. These applications should target 18-24 year olds in particular, as they are the group most willing to pay for such services (See Figure 5<sup>16</sup>). Partnerships should be formed with appliance manufacturers and mobile device software developers to give consumers the most efficient access possible to information and control. PHI

**Willingness to pay for specific services across age groups.**

*Percent of respondents that would pay a monthly fee for specific services.*



*Source: IBM 2008 Utility Consumer Survey.*

**Figure 5**

<sup>16</sup> Utility Customer Survey. IBM. 2008.

needs to be careful, however, to keep from overloading consumers with unnecessary information. These developments should be optional, as there many are customers that prefer to simply pay their bills every month and avoid interacting with their utility company.

### ***Renewable Energy***

Today, consumers need to jump through significant hurdles to connect power generated from their own solar panels or wind turbines into the grid and sell excess electricity back to power companies. PHI must anticipate that many more consumers will be embracing their own renewable energy sources as a method to both save on electricity costs and become more environmentally friendly. Smart meters that PHI installs should be equipped to handle reverse



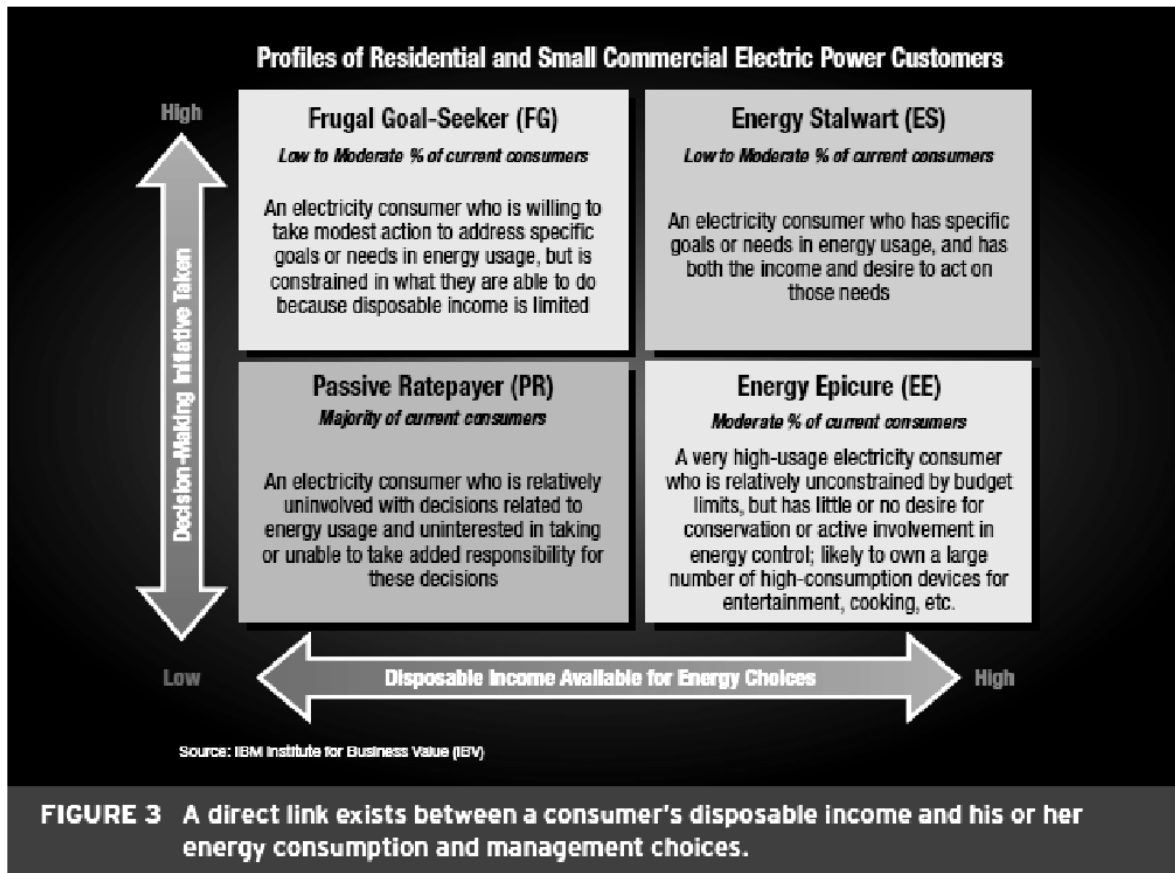


Figure 6<sup>17</sup>

transmission of electricity from alternative energy generation systems.

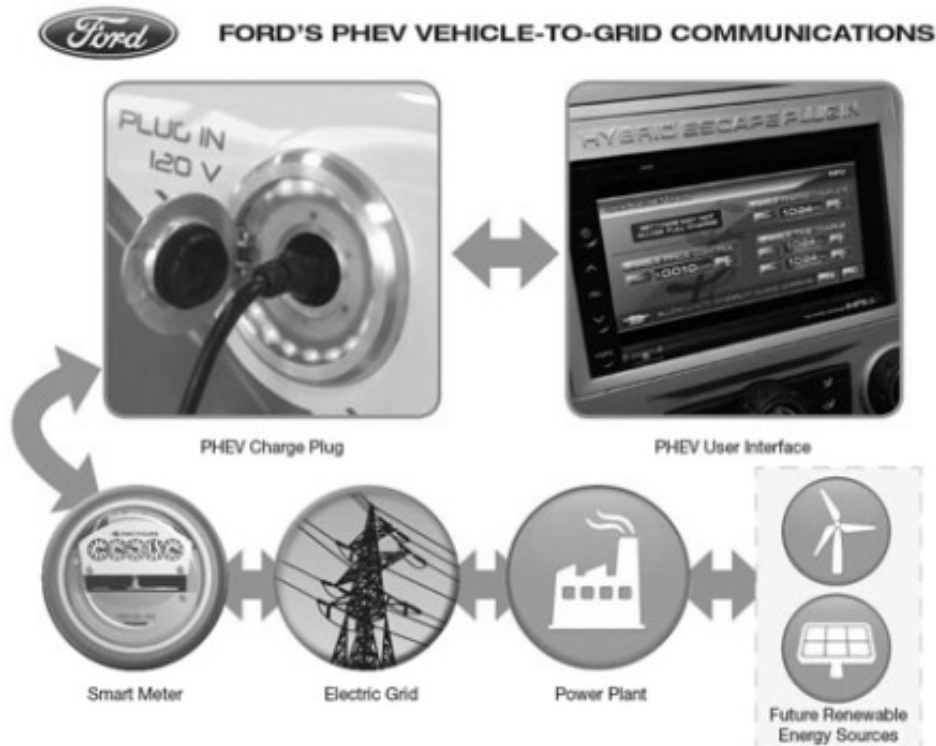
### *Plug-in Hybrid Vehicles*

Electric vehicles have the potential to revolutionize car markets worldwide. PHI has purchased 10 Chevy Volts to study the effects of electric vehicles on the power grid over the next two years.<sup>18</sup> While PHI should certainly study the effects of plug-in vehicles on the grid, the company cannot ignore their projected effects as they install smart meters in the immediate future. PHI must anticipate these effects and work with Comverge and IBM to design smart meters and home systems that will be able to accommodate the effects of plug-in vehicles on the

<sup>17</sup> IBM Institute for Business Value.

<sup>18</sup> <http://www.marketwatch.com/story/pepco-energizes-first-plug-in-vehicle-charging-stations-2010-01-25>

grid. Ford's vision for the interaction between the Smart Grid and its plug-in vehicles is show in the figure<sup>19</sup> below:



**Figure 7**

### ***Wi-Max Grid Communications***

Another partnership that PHI should pursue is with Sprint-Nextel's Clear. Clear is creating city-wide wireless networks called Wi-Max networks, with pilot programs in Washington, DC, Philadelphia, Austin, and Chicago among many other cities.<sup>20</sup> PHI should implement smart meters that are compatible with Wi-Max and transmit instantaneous consumption data wirelessly and constantly. This will eliminate the need for meter readers, employees who can be retrained to

<sup>19</sup> AutoneWSCast. 2009.

<sup>20</sup> <http://www.clear.com/coverage>

install and service smart meters and give consumers instantaneous access to their consumption data.

## Appendices

Today's Grid	Principal Characteristic	Modern Grid
Responds to prevent further damage. Focus is on protection of assets following system faults.	<b>Self-heals</b>	Automatically detects and responds to actual and emerging transmission and distribution problems. Focus is on prevention. Minimizes consumer impact.
Consumers are uninformed and non-participative with the power system.	<b>Motivates &amp; includes the consumer</b>	Informed, involved and active consumers. Broad penetration of Demand Response.
Vulnerable to malicious acts of terror and natural disasters.	<b>Resists attack</b>	Resilient to attack and natural disasters with rapid restoration capabilities.
Focused on outages rather than power quality problems. Slow response in resolving PQ issues.	<b>Provides power quality for 21<sup>st</sup> century needs</b>	Quality of power meets industry standards and consumer needs. PQ issues identified and resolved prior to manifestation. Various levels of PQ at various prices.
Relatively small number of large generating plants. Numerous obstacles exist for interconnecting DER.	<b>Accommodates all generation and storage options</b>	Very large numbers of diverse distributed generation and storage devices deployed to complement the large generating plants. "Plug-and-play" convenience. Significantly more focus on and access to renewables.
Limited wholesale markets still working to find the best operating models. Not well integrated with each other. Transmission congestion separates buyers and sellers.	<b>Enables markets</b>	Mature wholesale market operations in place; well integrated nationwide and integrated with reliability coordinators. Retail markets flourishing where appropriate. Minimal transmission congestion and constraints.
Minimal integration of limited operational data with Asset Management processes and technologies. Siloed business processes. Time based maintenance.	<b>Optimizes assets and operates efficiently</b>	Greatly expanded sensing and measurement of grid conditions. Grid technologies deeply integrated with asset management processes to most effectively manage assets and costs. Condition based maintenance.

IBM.

**PEPCO HOLDINGS, INC. AND SUBSIDIARIES**  
**CONSOLIDATED STATEMENTS OF EARNINGS**

<b>For the Year Ended December 31,</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>
<i>(Millions of dollars, except per share data)</i>			
<b>Operating Revenue</b>			
Power Delivery .....	\$ 5,487	\$5,244	\$5,119
Competitive Energy .....	5,279	4,054	3,161
Other .....	(66)	68	83
Total Operating Revenue .....	<u>10,700</u>	<u>9,366</u>	<u>8,363</u>
<b>Operating Expenses</b>			
Fuel and purchased energy .....	7,571	6,336	5,417
Other services cost of sales .....	718	607	649
Other operation and maintenance .....	917	858	808
Depreciation and amortization .....	377	366	413
Other taxes .....	359	357	343
Deferred electric service costs .....	(9)	68	22
Impairment losses .....	2	2	19
Effect of settlement of Mirant bankruptcy claims .....	—	(33)	—
Gain on sale of assets .....	(3)	(1)	(1)
Total Operating Expenses .....	<u>9,932</u>	<u>8,560</u>	<u>7,670</u>
<b>Operating Income</b> .....	<u>768</u>	<u>806</u>	<u>693</u>
<b>Other Income (Expenses)</b>			
Interest and dividend income .....	19	20	17
Interest expense .....	(330)	(340)	(339)
(Loss) income from equity investments .....	(5)	10	3
Other income .....	19	28	48
Other expenses .....	(3)	(2)	(12)
Total Other Expenses .....	<u>(300)</u>	<u>(284)</u>	<u>(283)</u>
<b>Preferred Stock Dividend Requirements of Subsidiaries</b> .....	<u>—</u>	<u>—</u>	<u>1</u>
<b>Income Before Income Tax Expense</b> .....	468	522	409
<b>Income Tax Expense</b> .....	<u>168</u>	<u>188</u>	<u>161</u>
<b>Net Income</b> .....	<u>\$ 300</u>	<u>\$ 334</u>	<u>\$ 248</u>
<b>Basic and Diluted Share Information</b>			
Weighted average shares outstanding .....	<u>204</u>	<u>194</u>	<u>191</u>
Earnings per share of common stock .....	<u>\$ 1.47</u>	<u>\$ 1.72</u>	<u>\$ 1.30</u>

**PEPCO HOLDINGS, INC. AND SUBSIDIARIES**  
**CONSOLIDATED STATEMENTS OF COMPREHENSIVE EARNINGS**

<u>For the Year Ended December 31,</u>	<u>2008</u>	<u>2007</u>	<u>2006</u>
<i>(Millions of dollars)</i>			
<b>Net income</b> .....	<u>\$ 300</u>	<u>\$334</u>	<u>\$ 248</u>
<b>Other comprehensive earnings (losses)</b>			
<b>Unrealized gains (losses) on commodity derivatives designated as cash flow hedges:</b>			
Unrealized holding (losses) gains arising during period .....	(317)	—	(144)
Less: reclassification adjustment for gains (losses) included in net earnings .....	<u>48</u>	<u>(84)</u>	<u>(2)</u>
Net unrealized (losses) gains on commodity derivatives .....	<u>(365)</u>	<u>84</u>	<u>(142)</u>
<b>Amortization of deferred hedging gains on terminated Treasury Rate Locks</b> ...	<u>5</u>	<u>9</u>	<u>12</u>
<b>Minimum pension liability adjustment</b> .....	<u>—</u>	<u>—</u>	<u>(1)</u>
<b>Amortization of gains and losses for prior service cost</b> .....	<u>(3)</u>	<u>2</u>	<u>—</u>
Other comprehensive (losses) earnings, before income taxes .....	(363)	95	(131)
Income tax (benefit) expense .....	<u>(147)</u>	<u>38</u>	<u>(51)</u>
<b>Other comprehensive (losses) earnings, net of income taxes</b> .....	<u>(216)</u>	<u>57</u>	<u>(80)</u>
<b>Comprehensive earnings</b> .....	<u><u>\$ 84</u></u>	<u><u>\$391</u></u>	<u><u>\$ 168</u></u>

**PEPCO HOLDINGS, INC. AND SUBSIDIARIES**  
**CONSOLIDATED BALANCE SHEETS**

<b>ASSETS</b>	<b>December 31,</b>	<b>December 31,</b>
	<b>2008</b>	<b>2007</b>
<i>(Millions of dollars)</i>		
<b>CURRENT ASSETS</b>		
Cash and cash equivalents .....	\$ 384	\$ 55
Restricted cash equivalents .....	10	15
Accounts receivable, less allowance for uncollectible accounts of \$37 million and \$31 million, respectively .....	1,392	1,278
Inventories .....	333	288
Derivative assets .....	98	43
Prepayments of income taxes .....	294	250
Prepaid expenses and other .....	115	68
Total Current Assets .....	<u>2,626</u>	<u>1,997</u>
<b>INVESTMENTS AND OTHER ASSETS</b>		
Goodwill .....	1,411	1,410
Regulatory assets .....	2,084	1,516
Investment in finance leases held in trust .....	1,335	1,384
Restricted cash equivalents .....	108	424
Income taxes receivable .....	191	196
Assets and accrued interest related to uncertain tax positions .....	178	35
Other .....	228	272
Total Investments and Other Assets .....	<u>5,535</u>	<u>5,237</u>
<b>PROPERTY, PLANT AND EQUIPMENT</b>		
Property, plant and equipment .....	12,926	12,307
Accumulated depreciation .....	(4,612)	(4,430)
Net Property, Plant and Equipment .....	<u>8,314</u>	<u>7,877</u>
<b>TOTAL ASSETS</b> .....	<u><u>\$16,475</u></u>	<u><u>\$15,111</u></u>

**PEPCO HOLDINGS, INC. AND SUBSIDIARIES**  
**CONSOLIDATED BALANCE SHEETS**

<b>LIABILITIES AND SHAREHOLDERS' EQUITY</b>	<b>December 31, 2008</b>	<b>December 31, 2007</b>
<i>(Millions of dollars, except shares)</i>		
<b>CURRENT LIABILITIES</b>		
Short-term debt .....	\$ 465	\$ 289
Current maturities of long-term debt and project funding .....	85	332
Accounts payable and accrued liabilities .....	847	797
Capital lease obligations due within one year .....	6	6
Taxes accrued .....	62	134
Interest accrued .....	71	70
Liabilities and accrued interest related to uncertain tax positions .....	71	132
Derivative liabilities .....	144	14
Other .....	279	263
Total Current Liabilities .....	<u>2,030</u>	<u>2,037</u>
<b>DEFERRED CREDITS</b>		
Regulatory liabilities .....	892	1,249
Deferred income taxes, net .....	2,269	2,105
Investment tax credits .....	40	39
Pension benefit obligation .....	626	66
Other postretirement benefit obligations .....	461	385
Income taxes payable .....	176	165
Liabilities and accrued interest related to uncertain tax positions .....	163	65
Other .....	244	241
Total Deferred Credits .....	<u>4,871</u>	<u>4,315</u>
<b>LONG-TERM LIABILITIES</b>		
Long-term debt .....	4,859	4,175
Transition bonds issued by ACE Funding .....	401	434
Long-term project funding .....	19	21
Capital lease obligations .....	99	105
Total Long-Term Liabilities .....	<u>5,378</u>	<u>4,735</u>
<b>COMMITMENTS AND CONTINGENCIES (NOTE 16)</b>		
<b>MINORITY INTEREST</b>	<u>6</u>	<u>6</u>
<b>SHAREHOLDERS' EQUITY</b>		
Common stock, \$.01 par value—authorized 400,000,000 shares, 218,906,220 shares and 200,512,890 shares outstanding, respectively .....	2	2
Premium on stock and other capital contributions .....	3,179	2,869
Accumulated other comprehensive loss .....	(262)	(46)
Retained earnings .....	1,271	1,193
Total Shareholders' Equity .....	<u>4,190</u>	<u>4,018</u>
<b>TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY</b> .....	<u><u>\$16,475</u></u>	<u><u>\$15,111</u></u>



**PEPCO HOLDINGS, INC. AND SUBSIDIARIES**  
**CONSOLIDATED STATEMENTS OF CASH FLOWS**

<b>For the Year Ended December 31,</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>
<i>(Millions of dollars)</i>			
<b>OPERATING ACTIVITIES</b>			
Net income	\$ 300	\$ 334	\$ 248
Adjustments to reconcile net income to net cash from operating activities:			
Depreciation and amortization	377	366	413
Gain on sale of assets	(3)	(1)	(1)
Effect of settlement of Mirant bankruptcy claims	—	(33)	—
Loss (Gain) on sale of other investment	1	—	(13)
Rents received from leveraged leases under income earned	(65)	(73)	(56)
Impairment losses	2	2	21
Noncash charge to reduce equity value of PHI's cross border energy lease investments	124	—	—
Proceeds from settlement of Mirant bankruptcy claims	—	507	70
Reimbursements to Mirant	—	(108)	—
Changes in restricted cash equivalents related to Mirant settlement	315	(417)	—
Deferred income taxes	329	83	244
Investment tax credit adjustments	(4)	(3)	(5)
Prepaid pension expense	19	13	22
Allowance for equity funds used during construction	(5)	(4)	(4)
Net unrealized gains on commodity derivatives accounted for at fair value	(21)	(2)	(34)
Changes in:			
Accounts receivable	(120)	(102)	356
Regulatory assets and liabilities	(325)	4	(32)
Prepaid expenses	(16)	(18)	5
Inventories	(46)	(4)	(8)
Accounts payable and accrued liabilities	77	60	(246)
Interest accrued	1	(10)	(5)
Taxes accrued	(257)	39	(468)
Cash collateral related to derivative activities	(274)	62	(260)
Proceeds from sale of B.L. England emission allowances	—	48	—
Net other operating	4	52	(44)
<b>Net Cash From Operating Activities</b>	<b>413</b>	<b>795</b>	<b>203</b>
<b>INVESTING ACTIVITIES</b>			
Net investment in property, plant and equipment	(781)	(623)	(475)
Proceeds from settlement of Mirant bankruptcy claims representing reimbursement for investment in property, plant and equipment	—	15	—
Proceeds from sale of other assets	56	11	182
Purchases of other investments	(1)	(1)	(1)
Proceeds from the sale of other investments	—	1	24
Net investment in receivables	3	2	2
Changes in restricted cash equivalents	5	8	11
Net other investing activities	4	5	27
<b>Net Cash Used By Investing Activities</b>	<b>(714)</b>	<b>(582)</b>	<b>(230)</b>
<b>FINANCING ACTIVITIES</b>			
Dividends paid on preferred stock	—	—	(1)
Dividends paid on common stock	(222)	(203)	(198)
Common stock issued to the Dividend Reinvestment Plan	29	28	30
Redemption of preferred stock of subsidiaries	—	(18)	(22)
Issuance of common stock	287	200	17
Issuances of long-term debt	1,150	704	515
Reacquisition of long-term debt	(590)	(855)	(578)
Issuances (repayments) of short-term debt, net	26	(61)	193
Cost of issuances	(30)	(7)	(6)
Net other financing activities	(20)	5	4
<b>Net Cash From (Used By) Financing Activities</b>	<b>630</b>	<b>(207)</b>	<b>(46)</b>
<b>Net Increase (Decrease) In Cash and Cash Equivalents</b>	<b>329</b>	<b>6</b>	<b>(73)</b>
Cash and Cash Equivalents at Beginning of Year	55	49	122
<b>CASH AND CASH EQUIVALENTS AT END OF YEAR</b>	<b>\$ 384</b>	<b>\$ 55</b>	<b>\$ 49</b>
<b>NON-CASH ACTIVITIES</b>			
Asset retirement obligations associated with removal costs transferred to regulatory liabilities	\$ 9	\$ 10	\$ 78
Conversion of DPL long-term debt to short-term debt	\$ 150	\$ —	\$ —
Recoverable pension/OPEB costs included in regulatory assets	\$ 610	\$ (31)	\$ 365
Transfer of combustion turbines to construction work in progress	\$ —	\$ 57	\$ —
<b>SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION</b>			
Cash paid for interest (net of capitalized interest of \$11 million, \$9 million and \$4 million, respectively) and paid for income taxes:			
Interest	\$ 316	\$ 338	\$ 332
Income taxes	\$ 99	\$ 36	\$ 239

**PEPCO HOLDINGS, INC. AND SUBSIDIARIES**  
**CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY**

	Common Stock		Premium on Stock	Capital Stock Expense	Accumulated Other Comprehensive (Loss) Earnings	Retained Earnings
	Shares	Par Value				
(Millions of dollars, except shares)						
BALANCE, DECEMBER 31, 2005 . . . . .	189,817,723	\$ 2	\$2,600	\$ (14)	\$ (23)	\$1,019
Net Income . . . . .	—	—	—	—	—	248
Other comprehensive loss . . . . .	—	—	—	—	(80)	—
Dividends on common stock (\$1.04/sh.) . . .	—	—	—	—	—	(198)
Issuance of common stock: . . . . .		—		—	—	—
Original issue shares . . . . .	882,153	—	17	—	—	—
DRP original shares . . . . .	1,232,569	—	30	—	—	—
Compensation expense on share-based awards . . . . .	—	—	13	—	—	—
Treasury stock . . . . .	—	—	(1)	—	—	—
BALANCE, DECEMBER 31, 2006 . . . . .	191,932,445	2	2,659	(14)	(103)	1,069
Net Income . . . . .	—	—	—	—	—	334
Other comprehensive income . . . . .	—	—	—	—	57	—
Dividends on common stock (\$1.04/sh.) . . .	—	—	—	—	—	(203)
Reacquisition of subsidiary preferred stock . . . . .	—	—	(1)	—	—	—
Issuance of common stock: . . . . .		—		—	—	—
Original issue shares . . . . .	7,601,290	—	200	—	—	—
DRP original shares . . . . .	979,155	—	28	—	—	—
Compensation expense on share-based awards . . . . .	—	—	(3)	—	—	—
Cumulative effect adjustment related to the implementation of FIN 48 . . . . .	—	—	—	—	—	(7)
BALANCE, DECEMBER 31, 2007 . . . . .	200,512,890	2	2,883	(14)	(46)	1,193
Net Income . . . . .	—	—	—	—	—	300
Other comprehensive loss . . . . .	—	—	—	—	(216)	—
Dividends on common stock (\$1.08/sh.) . . .	—	—	—	—	—	(222)
Issuance of common stock: . . . . .		—		—	—	—
Original issue shares . . . . .	17,095,081	—	287	(10)	—	—
DRP original shares . . . . .	1,298,249	—	29	—	—	—
Compensation expense on share-based awards . . . . .	—	—	4	—	—	—
BALANCE, DECEMBER 31, 2008 . . . . .	218,906,220	\$ 2	\$3,203	\$ (24)	\$(262)	\$1,271

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