

UTILITY COMMITTEE

A G E N D A

December 8, 2008 - 5:00 P.M. - Council Chambers - City Hall - City of Dover
Public comments are welcomed on any item and will be permitted at appropriate times.
When possible, please notify the City Clerk (736-7008 or e-mail at Tmcdowell@dover.de.us) should you wish to be recognized.

AGENDA ADDITIONS/DELETIONS

1. PACE/NAES Monthly Report (October)
 - A. Emissions and Allowance Management
 - a-1. Greenhouse Gas Emissions Issue/SO2 Market: DC Circuit Court Vacation of CAIR
(Requested during 9/22/08 Utility Committee Meeting)
2. Energy Efficiency, Conservation, and Climate Change
 - A. Federal Energy Efficiency and Conservation Block Grant - NLC Legislative Action Request
 - B. State Energy Plan - Brief Update by Committee Chair on Overall Planning Process
 - C. Dover's Climate Change Plan - How Do We Benchmark and Measure Our Progress in Reducing Greenhouse Gas Emissions
3. Adjournment by 5:55 P.M.

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City of Dover
October Monthly Report
Energy and Operations Management
November 20, 2008

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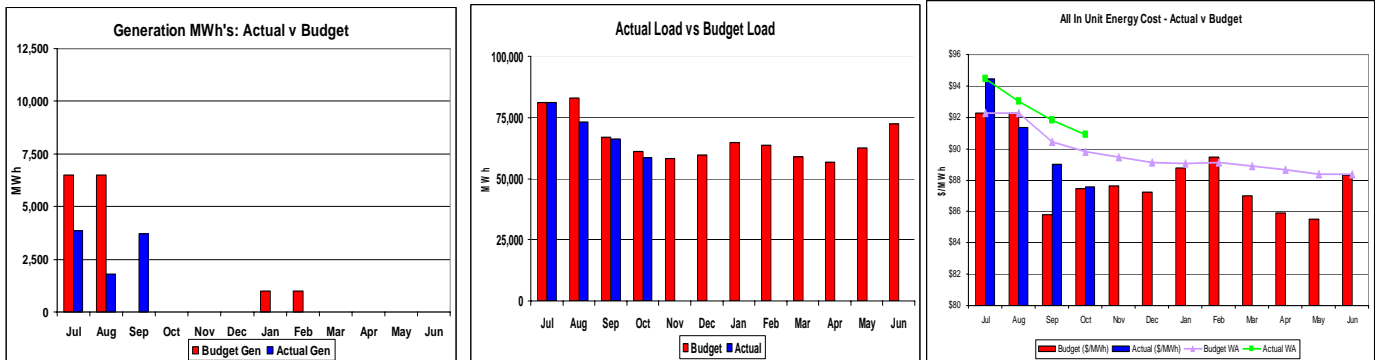
This Report does contain some forward-looking opinions. Certain unanticipated factors could cause actual results to differ from the opinions contained herein. Forward-looking opinions are based on historical and/or current information that relate to future operations, strategies, financial results or other developments. Some of the unanticipated factors, among others, that could cause the actual results to differ include regulatory developments, technological changes, competitive conditions, new products, general economic conditions, changes in tax laws, adequacy of reserves, credit and other risks associated with City of Dover and/or other third parties, significant changes in interest rates and fluctuations in foreign currency exchange rates.

Further, certain statements, findings and conclusions in this Report are based on Pace Global's interpretations of various contracts. Interpretations of these contracts by legal counsel or a jurisdictional body could differ.

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1.0 - EXECUTIVE SUMMARY



Purchased Power Management

Wholesale load for the month of October was 58,391 MWhs versus a three year historic weather normalized load of 61,170 MWhs. Hedged transactions accounted for 55,720 MWhs or 95.4% of this volume (91.1% of forecasted load) at a cost of \$4.38 million. Spot Market purchases resulted in a PJM charge of \$272 thousand (\$365 thousand charge in the Day Ahead market and a \$93 thousand credit in the real time market). Other PJM related charges accounted for an additional \$1.109 million cost, inclusive of all load related fees. October All-In Energy Unit Cost, excluding capacity obligations and credits was \$0.13/MWh above the October 2008 budget of \$87.47/MWh. For the year, projected All-In Energy Unit Cost is \$0.38/MWh above the budget; based on YTD actual results and budgeted values for subsequent months.

Generation and Asset Management

For the month of October, PJM did not dispatch the McKee Run or the Van Sant units. Stable PJM system grid operations and lower system demand resulted in neither favorable nor unfavorable production margin.

Emissions and Allowance Management

During the month of October, Pace arranged for the sale of 28 tons of NOx allowances at \$750 per ton resulting in \$20,720 of net revenue to the City (after \$10 per ton commission). Total net revenue through October 30th from allowance sales for the 2008-09 fiscal year is \$165,470, accounting for Broker's fees. No SO₂ allowance sales have occurred in the 2008-09 fiscal year.

Given current dispatch expectations, the market value of the Dover allowance inventory is \$484,740 at the time of this report. If sold, Dover would realize \$650 thousand in revenue for the year. This would result in a \$782 thousand unfavorable variance.

SO₂ allowance prices continue to remain depressed as uncertainty remains regarding the post SO₂ regime since the D.C. Circuit Court of Appeals' vacature of the Clean Air Interstate Rule (CAIR), and it does not appear that prices will significantly increase in the near term. EPA and several

environmental groups requested that the US Court of Appeals re-hear certain parts of CAIR. Since the request several petitioners have filed briefs with the Court urging that the re-hearing be denied. With debate continuing regarding appropriate actions and timelines for addressing the vacature, many are now looking to the new Congress to enact a legislative solution to the CAIR battle. EPA also expects a further increase in the bank of SO₂ allowances due to the projection that 2008 emissions will again fall below the 8.95 million ton cap. The combination of this net long SO₂ position and worsening financial conditions has further depressed allowance prices to \$170 per ton.

Seasonal NO_x allowance prices have steadily declined as the December 1 true-up approaches. Generators appear to be in aggregate long NO_x allowances due to lower energy demand and reported well-functioning emission controls. Buying interest has decreased, and prices have dropped well below the City's target price to \$550 per ton. The City sold 150 tons at \$975 per ton and 28 tons at \$750 per ton.

After the close of the first RGGI quarterly auction in September, allowance prices moved to \$4/ton. The next auction is scheduled for December 17, 2008. Based on projected generation and emissions Dover is projected to have an excess of 70,000 allowances through 2013 with a market value of \$280,000. Pace will continue to monitor the RGGI market and will advise Dover regarding allowance sales if the market alters.

EMISSIONS & ALLOWANCE SUMMARY						
Allowance Vintage	Allowance Allocation	Emissions Month	Emissions YTD	Allowances Sold Month	Allowances Sold YTD	Allowance Balance
SO ₂ – 2007	2723	0	98	0	2076	549 ¹
SO ₂ – 2008	2723	0	30	0	0	2,693
NO _x – 2007	198	0	32	0	166	0
NO _x – 2008	198	0	20	0	178	0

Operations Management Summary

During the month of October, there were no employee or contractor related OSHA injuries, illnesses or time loss accidents. There were zero Environmental Notices of Violations issued during the month. All the McKee Run Units were on planned outage during the entire month. The VanSant Unit was available but not called for by PJM. There was an environmental deviation during the month due an underground oil leak which was discovered during a pipe flushing process being performed as part of the pollution remediation project.

Monthly Budget Variance – The actual expenses attributable to O&M of the two sites for the month of October were \$479,722. The expenses were \$71,024 above the approved budget of \$408,698. The principal reason for the negative variance is due auxiliary electric and water usage bills not expensed September but were paid in October.

¹ Corrected 2007 SO₂ tons emitted to reflect actual emission for Units 3 & 11. December, 2007 report included emissions for all four units.

Major activities for the Month include the Pollution Remediation Project construction work along with the planned outage work for all McKee Run Units.

Risk Management Summary

Energy commodity prices continued to fall since the last reporting period, driven by instability in the financial markets and concerns about the slowing economy and reduced demand. Forward crude oil prices fell below \$60/barrel, while natural gas forward prices decreased to the mid-\$6/MMBtu range. In turn, PJM forward power prices decreased by \$2.48/MWh (3.6%) for Fiscal Year 2009-2010 and \$1.39/MWh (2.0%) for Fiscal Year 2010-2011.

As a result of lower forward power prices, the City’s projected wholesale Cost-of-Service for all forward power years decreased compared to the last reporting period, as shown in the table below:

Wholesale Cost-of-Service Summary (Projected)
\$/MWh²

Power Year	Budget	November				October	September
	Cost-of-Service Budget	Cost-of-Service \$/MWh	Hedge Ratio	Year-to-Year Increase	Forecasted over 2008-09 Budget	Cost-of-Service \$/MWh	Cost-of-Service \$/MWh
2008-2009	\$90.18	\$90.88	92%*	9.9%**	0.77%	\$91.07	\$91.17
2009-2010	N/A	\$93.56	87%	3.0%	3.75%	\$93.66	\$94.24
2010-2011	N/A	\$88.82	62%	-5.1%	-1.51%	\$89.30	\$90.82
2011-2012	N/A	\$85.21	51%	-4.1%	-5.51%	\$86.30	\$87.86
2012-2013	N/A	\$85.85	27%	0.7%	-4.81%	\$86.07	\$87.48

* Reflects balance of year hedge ratio for current Power Year

** FY 07/08 Cost-of-Service is \$82.70/ MWh

² Includes Energy, Load Following, PJM Fees, and PGAM Base Fees and estimated Incentive. The values in the table reflect the terms of the First Amendment to the Energy Management Agreement.

2.0 - BUDGET REPORT

2.1 – VARIANCE REPORT

	Budget Oct-08	Actual Oct-08	Variance Oct-08
Load Forecast	61,170	58,391	2,779
Power Supply			
Power Supply	\$4,038,112	\$4,385,374	(\$347,262)
Power Supply Management	\$227,837	\$241,991	(\$14,154)
Capacity Charges - Load	\$885,313	\$893,960	(\$8,647)
PJM Charges - Load	\$1,084,524	\$487,547	\$596,977
Total - Power Supply	\$6,235,785	\$6,008,871	\$226,914
Generation			
Plant Operations	\$407,446	\$479,721	(\$72,275)
Generation Fuel	\$23,911	\$19,749	\$4,162
Capacity Credits	(\$765,406)	(\$765,406)	\$0
PJM Credits	(\$5,403)	(\$5,729)	\$325
Total - Generation	(\$339,453)	(\$271,665)	(\$67,787)
Emission Allowance Sales			
Total - Emission Allowance Sales	\$0	(\$20,720)	\$20,720
Total Power Supply & Generation	\$5,896,333	\$5,737,206	\$159,127
Total Power Supply, Generation & Emission Sales	\$5,896,333	\$5,716,486	\$179,847
Unit Costs			
Total – Power Supply	\$101.94	\$102.91	(\$0.97)
Total - Generation + Emission Sales	(\$5.55)	(\$5.01)	(\$0.54)
Final Cost of Service to City of Dover Ratepayers	\$96.39	\$97.90	(\$1.51)

	Budget YTD	Actual YTD	Variance YTD
Load Forecast	292,157	278,704	13,453
Power Supply			
Power Supply	\$20,094,923	\$21,465,209	(\$1,370,286)
Power Supply Management	\$958,824	\$1,024,097	(\$65,273)
Capacity Charges - Load	\$3,512,694	\$3,547,686	(\$34,992)
PJM Charges - Load	\$5,180,969	\$2,849,290	\$2,331,679
Total - Power Supply	\$29,747,410	\$28,886,281	\$861,128
Generation			
Plant Operations	\$2,023,168	\$1,722,568	\$300,600
Generation Fuel	\$1,721,028	\$1,376,108	\$344,920
Capacity Credits	(\$3,088,384)	(\$3,070,013)	(\$18,371)
PJM Credits	(\$1,995,079)	(\$1,483,327)	(\$511,752)
Total - Generation	(\$1,339,266)	(\$1,454,664)	\$115,398
Emission Allowance Sales			
Total - Emission Allowance Sales	(\$144,500)	(\$168,470)	\$23,970
Total Power Supply & Generation	\$28,408,144	\$27,431,617	\$976,526
Total Power Supply, Generation & Emission Sales	\$28,263,644	\$27,263,147	\$1,000,496
Unit Costs			
Total – Power Supply	\$101.82	\$103.65	(\$1.83)
Total - Generation + Emission Sales	(\$5.08)	(\$5.82)	\$0.75
Final Cost of Service to City of Dover Ratepayers	\$96.74	\$97.82	(\$1.08)

2.2 – VARIANCE ANALYSIS

Power Supply

- Power Supply realized an unfavorable \$347 thousand variance compared to the budget due to the purchase of additional forward positions totaling 3,720 MW hours in October. This purchase was transacted after the FY 2008 budget was submitted to Dover.
- The Power Supply Management variance is merely an estimate at this point.
- As discussed on during the July, 2008 Management Committee the PJM Base Residual Auction on April 3, 2008 resulted in a new \$ per MW.day UCAP charge. This charge results in unfavorable variances each month.
- PJM Charges Load resulted in a favorable variance of \$597 thousand compared to the budget. The increased hedge position reduced the open position MW hours relative to budget accounting for more than half of this variance, In addition, the reduced demand resulted in an additional reduction of 2,779 MW hours accounting for \$227 thousand of variance. Finally, the basis between the locations hedged and Dover resulted in an additional favorable variance. These favorable variance were partially offset by a combination of unfavorable variances in the transmission network integration charges the transmission rights credits and the ancillary services.

Generations

- Plant O&M resulted in an unfavorable variance of \$72 thousand compared to the approved budget of \$407 thousand due to auxiliary electric and water usage bills paid in October for September usage.
- Generation Fuel realized a favorable variance of \$1.1 thousand for the month primarily due to lower than expected base load gas costs, and fixed fuel and credits to Eastern Shore imbalance.

Emission Allowance Sales

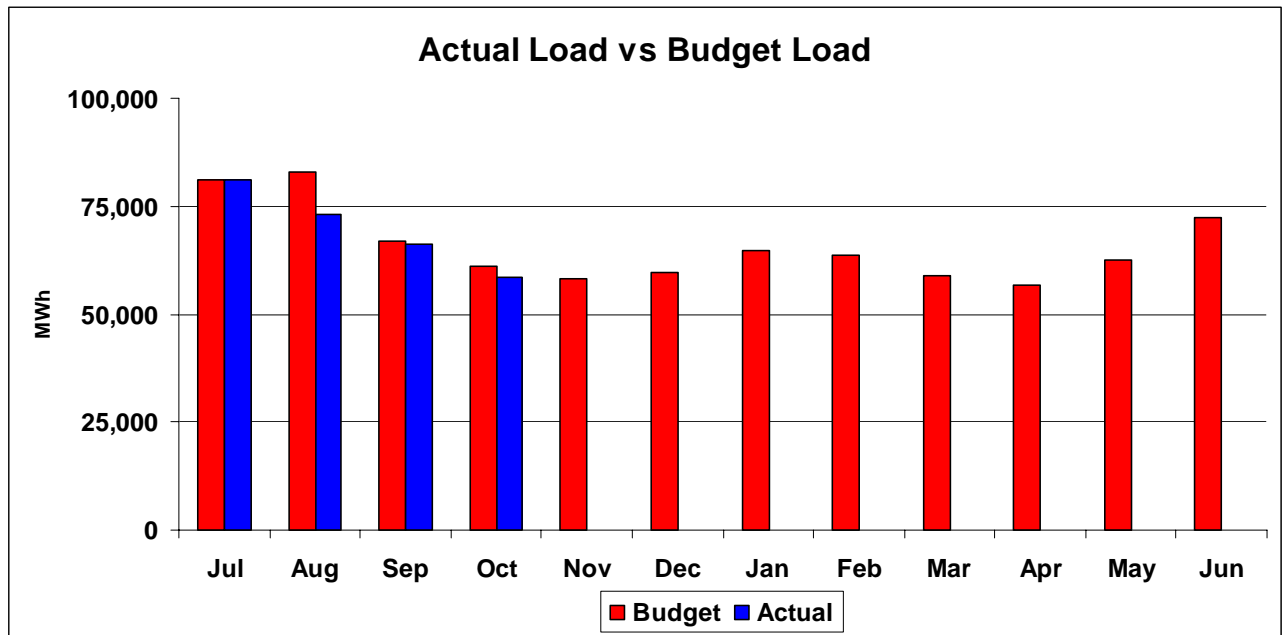
- On October 14, Pace arranged and executed the sale of 28 tons of current year vintage NO_x allowances, resulting in \$20,720 (including broker's fees) of revenue for the City.

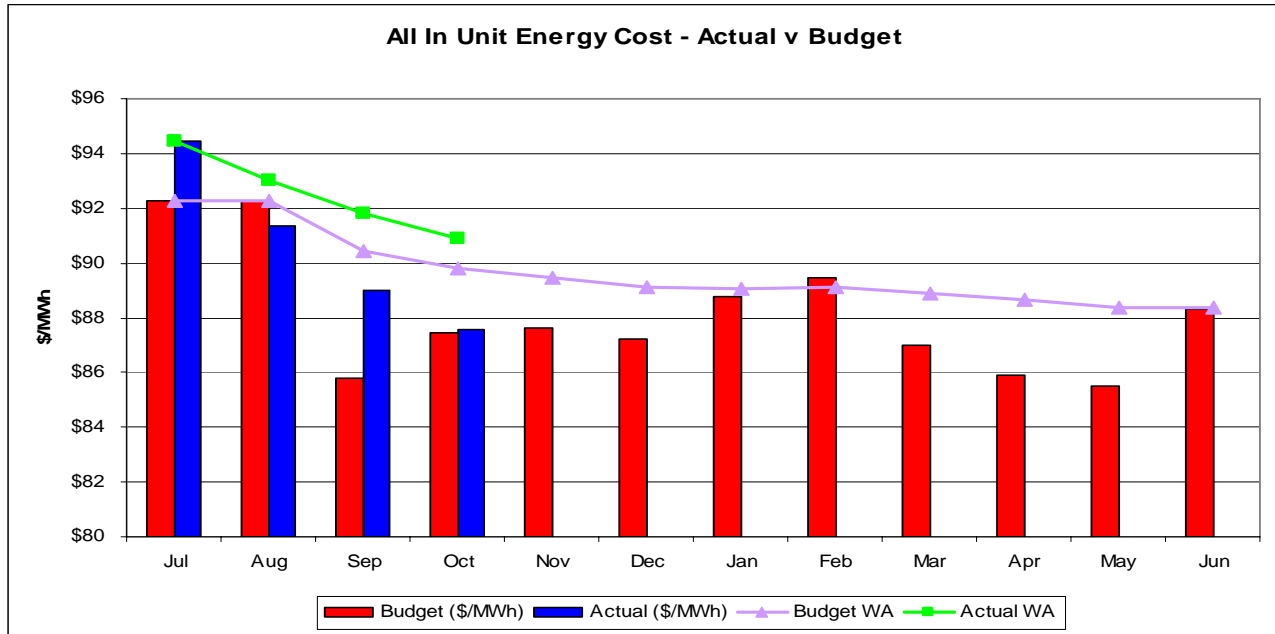
3.0 – ENERGY MANAGEMENT

3.1 - PURCHASED POWER

Management Highlights

- Dover’s October load was 58,391 MWh which was 95.4% of the historic weather normalized load of 61,170 MWh. Hedge volumes also equaled 95.4% of actual load for the month.
- October All In Unit Energy cost excluding capacity of \$87.60 is \$0.13 per MWh above budget for the month. The 7% increase in the hedge volume compared to budget with the 4.5% decrease in the volume resulted in a 71% reduction in the open position volume. This resulted in a positive absolute dollar variance for the open position.





Purchased Power Variance Report

	Budget	Actual	Variance
	Oct-08	Oct-08	Oct-08
City of Dover Load			
Load Obligation (MWh)	61,170	58,391	2,779
Unit Energy Costs (\$ per MWh)			
Energy Cost (inc. Load Following & Pace Fees)	\$82.02	\$81.30	\$0.72
Pass Through	\$4.45	\$5.01	(\$0.56)
Incentive Fees	\$1.00	\$1.29	(\$0.29)
Total - All In Unit Energy Cost	\$87.47	\$87.60	(\$0.13)

Purchased Power Variance Analysis

- Actual Dover load of 58,391 MWh was 95.5% below the projected October load of 61,170 MWh.
- The All In Unit Energy Cost resulted in an unfavorable \$0.13 per MWh variance predominantly caused by higher than anticipated open energy costs per MWh; an increased hedge cost due to the placement of a hedge in June at a price greater than the weighted average price of the existing hedges and the \$ per MWh unfavorable variance for the open position and other PJM charges.. The unfavorable variances were partially offset by a favorable volume variance.
- The Management Incentive fee variance on a \$/MWh basis is merely an estimate at this point.

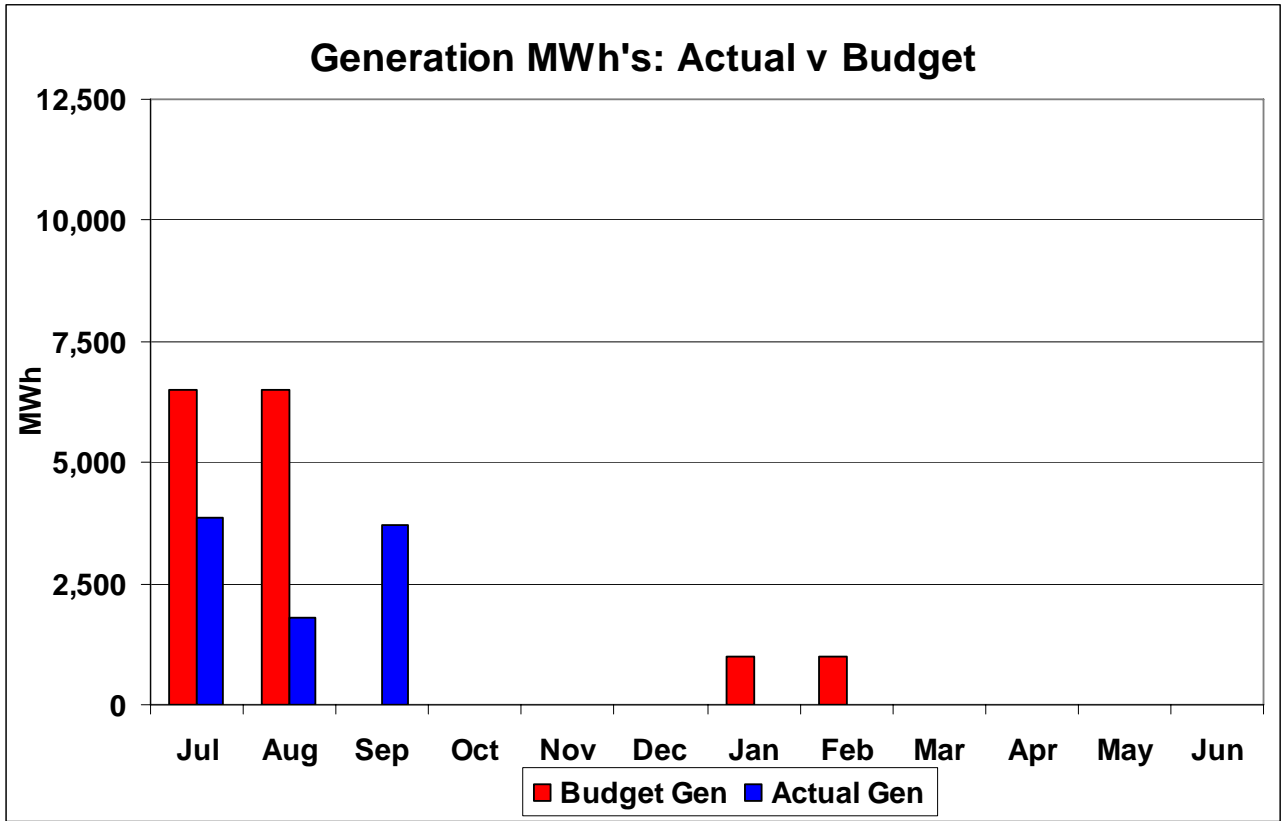
PJM Power Balancing and Load Related Fees

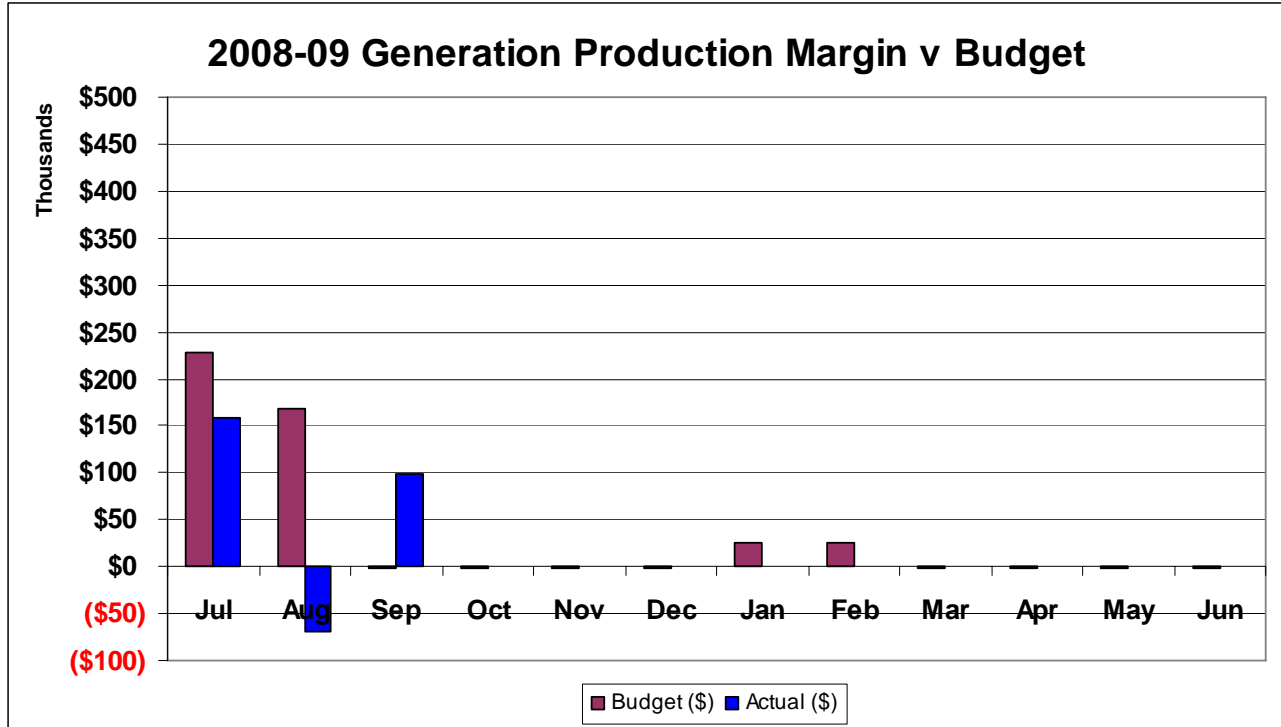
Purchased Power (Hedges): 55,720 MWh's @ \$78.70/MWh:	\$4,385,373
Power Balancing and Additional PJM and Energy Manager Fee ³ :	<u>\$1,623,498</u>
Total Cost to Serve Load (58,391 MWh's)	\$6,008,871
ALL in \$/MWh load cost inclusive of Energy Manager Fees:	\$102.91/MWh

³ Includes estimated Incentive Fees.

3.2 - GENERATION MANAGEMENT

- As budgeted for the month McKee Unit 3 and VanSant units did not operate for PJM.





**Notes: July 2008 Report's 2008-09 Generation Production Margin v Budget graph displayed incorrect actual amount. The graph shown above has been corrected to reflect the actual value.*

Generation Management Variance Report

	Budget	Actual	Variance
	Oct-08	Oct-08	Oct-08
Self-Supplied Capacity from Gen (MW)			
McKee Run 1	13.2	13.2	0
McKee Run 2	16.7	16.7	0
McKee Run 3	97.4	97.4	0
Van Sant	38.1	38.1	0
Self Supplied Capacity from Gen (MW)	165.4	165.4	0
Additional Capacity from PJM Incremental Auction	7.9	7.9	0
Total Capacity from Gen (MW)	173.3	173.3	0
Gen Capacity Sales to PJM (\$/MW.d)	\$148.80	\$148.80	0
Incremental Auction Sales to PJM (\$/MW.d)	\$10.00	\$10.00	0
Power Sales			
Power Sales (MWh)	0	0	0
Sales Revenue (\$ per MWh)	\$0.00	\$0.00	\$0.00
Power Sales Revenue (\$)	\$0.00	\$0.00	\$0.00
Variable Fuel & Transport			
Fuel Oil No.2 Volume (gal)	0	0	0
Fuel Oil No.2 (\$/gal)	\$0.00	\$0.00	\$0.00
Fuel Oil No.2 Cost of Goods Sold (\$)	\$0.00	\$0.00	\$0.00
Fuel Oil No.6 Volume (gal)	0	0	0
Fuel Oil No.6 (\$/gal)	\$0.00	\$0.00	\$0.00
Fuel Oil No.6 Cost of Goods Sold (\$)	\$0.00	\$0.00	\$0.00
Gas Volume (Dth)	0	0	0
Unit Gas Price (\$/Dth)	\$0.00	\$0.00	\$0.00
Variable Gas Cost (\$)	\$0.00	\$0.00	\$0.00
Transport (\$)	\$0.00	\$0.00	\$0.00
Variable Gas and Transport Costs (\$)	\$0.00	\$0.00	\$0.00
Variable Fuel & Transport Costs (\$)	\$1,200.00	\$0.00	\$1,200.00
Testing	\$0.00	\$0.00	\$0.00
Generation Production Margin	\$1,200.00	\$0.00	\$1,200.00
Generation Capacity Payment			
Total - Generation Capacity Payment	(\$765,406)	(\$765,406)	\$0.00

Generation Management Variance Analysis

Fuel Expense

- PJM did not dispatch Dover units into the market and it did not consume any fuel oil nor spot natural gas purchase for the month.
- Natural gas was consumed for heating the residual resulting in a fuel cost of \$15,307.

<i>Generation Production Margin</i>		
Transaction	Volumes	Revenue/(Cost)
PJM Invoice for Power Sold	0 MWh's	\$0
Fuel and Transport	0 dth gas/0 gal #2 oil 0 gal #6 oil	(\$0)
Generation Production Margin	0 MWh's	\$0

The following non-production energy revenues and costs are generally fixed and not directly related to generation dispatch and power production.

PJM Invoice (Black Start)	\$5,729
Fuel Oil Tank Heating & Black Start Gas Supply	(\$12,927)
Eastern Shore Demand Charge	(\$4,490)
Eastern Shore Transport and Imbalance Charge	\$1,457
<u>Transco Demand Charge</u>	<u>(\$3,789)</u>
Non-Production Energy Revenue/Costs	(\$14,020)

Fuel and Transportation

The McKee Run Unit 3 and Van Sant Unit 11 were not dispatched for the month; hence neither units required any purchase of spot natural gas.

Date	Volume (Dth)	Price (\$/Dth)	Total Commodity Cost (\$)
<i>New Jersey NG</i>			
Sub-Total	0		\$0
<i>Hess Corp</i>			
Sub-Total	0		\$0
<i>Chesapeake</i>			
Sub-Total	0		\$0
Total	0	\$0.00	\$0.00

Gas was contracted and purchased on a firm basis in October to maintain the No.6 fuel oil inventories at McKee Run at approximately 160 degrees. This firm delivery base load gas supply has been purchased from Sempra Energy. The Details of this deal are as follows:

Firm Gas Supply	Price Per dth	Total Cost
55 dth/day	\$7.582	\$12,927.31

Gas Transportation Purchased

Eastern Shore Natural Gas Pipeline and TransCo agreements provide for deliveries to the McKee Run and VanSant stations. These charges include a firm demand charge and prior period adjustments as follows:

ESNG FT Demand Charge	\$4,490
TransCo FT Demand Charge	<u>\$3,789</u>
Total Purchases	<u>\$8,279</u>

Other Gas Purchases

Commodity and transportation imbalances on Eastern Shore Pipeline for the month resulted in a credit of \$1,457.26 and it is summarized as follows.

Eastern Shore Transport and Imbalance Charges			
Imbalance/dth	Estimated Cost/dth	Estimated Total Cost	
446	\$3.37	\$1,500.79	
		<u>\$1,500.79</u>	
Transport	Volume/dth	\$/dth	Total Cost
Firm/IT	1,197	\$0.04	(\$43.53)
Net	<u>\$1,457.26</u>		

Purchased Commodity Fuel Oil Summary

In preparation for the upcoming fuel oil conversion project, McKee Unit 3 tank inventory no.6 fuel oil was sold to FCC at \$0.98 per gallon with 122,598 gallons totaling \$120 thousand revenue for City of Dover. Once the no. 6 fuel oil was extracted from the tank, the initial inventory of low sulfur no.2 fuel for McKee tank was required to extract remaining fuel in the pipeline and post operational tests. McKee tank received initial inventory of \$50,000 gallons and the total purchase was nearly \$124 thousand.

Van Sant dispatches in September required an additional purchase and replenish of fuel oil no.2 to Van Sant inventory. Approximately 56,801 gallons were purchased, totaling purchase of \$230 thousand.

<i>Tank Inventory Estimates as of October 31</i>			
Tank	Tank Capacity (gallon)	Inventory In (gallon)	Days of Burn (Typical Dispatch ⁴)
McKee Run (#6 Fuel Oil to #2 Fuel Oil)	2,554,105	49,630	N/A
VanSant (#2 Fuel Oil)	258,000	111,412	3

<i>October 2008 Fuel Oil Purchase</i>				
Date	#2 Oil Purchased (gal)	Inventory Price (\$/gal)		Cost
McKee				
Oct-17	14,164	\$2.4434		\$34,608
Oct-20	28,729	\$2.4864		\$71,432
Oct-21	7,107	\$2.4864		\$17,671
Total	50,000	\$2.47		\$123,710.95
Van Sant				
Oct-28	14,197	\$2.079		\$29,516
Oct-29	14,200	\$2.079		\$29,522
Oct-30	14,200	\$2.079		\$29,522
Oct-31	14,204	\$2.079		\$29,530
Total	56,801	\$2.079		\$118,089

⁴ McKee Run Unit 3 is undergoing a planned outage to convert its fuel oil to distillate oil. #6 Fuel Oil was sold and #2 Fuel Oil was purchased. Under typical dispatch, VanSant consumes 3,000 gallons per hour and under typical dispatch would be dispatched up to six hours.

3.3 - EMISSIONS AND ALLOWANCE MANAGEMENT

As shown in Exhibit 1, total net revenue from allowance sales for the 2008-09 fiscal year is \$165,470, accounting for Broker's fees. City of Dover holds 2,693 tons of vintage 2008 SO₂ allowances and no tons of vintage 2008 NO_x allowances. Additionally, the City has a balance of 549 tons of vintage 2007 SO₂ allowances. At the August 21, 2008 Management Committee meeting the Committee set a trigger price for the SO₂ allowances of \$260/ton whereby if the City could achieve this price it would sell half of its SO₂ allowances.

Exhibit 1: Emissions and Allowance Summary through October 30, 2008

2008-2009 EMISSIONS & ALLOWANCE SUMMARY							
Date	Action	SO ₂			NO _x		
		Allowance Allocation	Sale Price	Revenue ¹	Allowance Allocation	Sale Price	Revenue ¹
1/1/08	Initial 2008 Allocation	2,723	--	--	198	--	--
1/1/08	2007 Carryover	549	--	--	0	--	--
7/21/08	Sold 150 tons NO _x	--	--	--	-150	\$975.00	\$144,750
10/14/08	Sold 28 tons NO _x	--	--	--	-28	\$750	\$20,720
10/30/08	2008 YTD Emissions	-30	--	--	-20 ²	--	--
Totals							
- 2007 Vintage Allowances		549	--	--	0	--	--
- 2008 Vintage Allowances		2,693	--	--	0	--	\$165,470

↓	\$165,470
→	\$0
Total Revenue	\$165,470

Notes:

- (1) Revenue calculations account for a \$1/ton broker fee for SO₂ and a \$10/ton broker fee for NO_x.
- (2) NO_x emissions pertain only to seasonal emissions (May 1 – Sep 30).

During the month of October, Pace arranged for the sale of 28 tons of NO_x allowances resulting in \$20,720 of net revenue to the City. There was no change in the inventory values of the City's emission allowances. Total net revenue through October 30th from allowance sales for the 2008-09 fiscal year is \$165,470, accounting for Broker's fees. No SO₂ allowance sales have occurred in the 2008-09 fiscal year.

Given current dispatch expectations, the market value of the Dover allowance inventory is \$484,740 at the time of this report. If sold, Dover would realize \$650 thousand in revenue for the year. This would result in a \$782 thousand unfavorable variance.

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After the close of the first RGGI quarterly auction in September, allowance prices moved to \$4/ton. The next auction is scheduled for December 17, 2008. Based on projected generation and emissions Dover is projected to have an excess of 70,000 allowances through 2013 with a market value of \$280,000. Pace will continue to monitor the RGGI market and will advise Dover regarding allowance sales if the market alters.

4.0 – OPERATIONS MANAGEMENT

Management Highlights

- Completed the month of October accident free and have now recorded 1,304 consecutive days without reportable accidents.
- During the month, there were no unit dispatches of any of the McKee Run units due to the Pollution Remediation/Oil Conversion Project Outage. Unit #11 at VanSant was available for the month of October but was not dispatched.
- As part of the Oil Conversion Project, Pace Global on behalf of the City of Dover contracted with FCC to purchase the remaining #6 fuel oil inventory.
- Progress continues on the Pollution Remediation Project which includes the fuel oil conversion from #6 fuel oil to #2 fuel oil. On October 1, Units 1, 2 and 3 went into a planned outage scheduled to last until December 31, although it is expected that the conversion will be completed in early December.
- During the month of October, the McKee Run facility began flushing the fuel oil transfer piping with No. 2 fuel oil as part of the pollution remediation project. During the flushing process, a leak was discovered in the fuel oil supply line coming from the tank to the plant. Immediate actions were taken to find the source of the leak which was located in the piping that passes through the earthen dike. Notifications were made to DNREC, NRC and emergency cleanup contractors.
- The replacement of the CEMS computers at McKee Run and VanSant Generating Stations were completed. These computers were installed to comply with EPA reporting requirements which specified that EDRs be submitted in .xml format.
- Completed the installation of new low NOX gas burner spuds for all MRGS units as part of the Pollution Remediation Project which began on October 1, 2008.
- The Maintenance Supervisor Position was filled by an in-house candidate, Phil Marvel, who prior to accepting the position, was the Plant Electrician. With Mr. Marvel assuming the new position, it has now created a void in the maintenance team that the plant is actively working to fill. The position of IC/E Technician has been posted on the NAES website and in several of the local papers.
- Three senior operators attended Fred Pryor leadership training on Coaching Skills for Managers and Supervisors on October 15th. This training was designed to improve their leadership and coaching skills for the future.
- The following is the NAES Monthly Report as submitted to PGAM

North American Energy Services Dover, DE October 2008 Monthly Report



Unit 3 – “A” Deck Oil System Modifications

Table of Contents

- 1.0 Environmental, Health and Safety**
- 2.0 Financial**
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1.0 Environmental, Health and Safety

Completed the month of October accident free and have now recorded 1,304 consecutive days without a reportable accident.

During the month of October, the McKee Run facility began flushing the fuel oil transfer piping with No. 2 fuel oil as part of the pollution remediation project. During the flushing process, a leak was discovered in the fuel oil supply line coming from the tank to the plant. Immediate actions were taken to find the source of the leak which was located in the piping that passes through the earthen dike. Notifications were made to DNREC, NRC and emergency cleanup contractors. The clean up process began the following morning and included the remediation and the staging of contaminated soil from a section of the earthen dike and surrounding area. It is expected that the damaged piping will be replaced, the earthen dike repaired and all contaminated soil tested and removed from the facility all during the month of November.

<i>Environmental, Health and Safety Statistics</i>		
	Month (October 2008)	Fiscal Year to Date (7/1/08-6/30/09)
<i>NOVs</i>	0	0
<i>Opacity Deviations</i>	0	2
<i>Environmental Deviations</i>	1	1
<i>OSHA Recordable</i>	0	0
<i>OSHA LTA's</i>	0	0
<i>First Aid cases</i>	0	0
<i>Restricted Workday Accident</i>	0	0
<i>Near Miss</i>	1	2
<i>Man Hours Worked</i>	5,305	20,679.25
<i>Date last OSHA Recordable</i>		4/05/05
<i>Date last Lost Time Accident</i>		4/05/05
<i>Days since last OSHA recordable</i>		1,304
<i>Days since last Lost Time Accident</i>		1,304

Emissions (NOx & SO2) All data thru 10/31/08

<i>NOx Summary - Year (May-Sept.)Tons</i>					
<u>Year</u>	<u>Unit #1</u>	<u>Unit #2</u>	<u>Unit #3</u>	<u>Unit #11</u>	<u>TOTAL</u>
2005	20.16	20.64	103.3	2.19	146.29
2006	1.82	1.78	19.25	1.72	24.57
2007	3.3	2.7	25.9	0.7	32.6
2008	1.01	0.96	17.0	1.28	20.25

<i>NOx Allowances Summary</i>					
<u>NOx Allowance Vintage</u>	<u>NOx Allowances Sold YTD</u>	<u>NOx Allowances Available (Per Facility, Prior to Sale)</u>		<u>Total NOx Tons Emitted (NOx Season)</u>	<u>NOx Allowance Balance</u>
		<u>McKee Run</u>	<u>VanSant</u>		
2007	165	191	7	33	0
2008	178	191	7	20	0
2009	0	191	7	0	198

Note: NOx Season is May 1 to September 30.

SO₂ Summary - Year (Jan.-Dec.)Tons					
<u>Year</u>	<u>Unit #1</u>	<u>Unit #2</u>	<u>Unit #3</u>	<u>Unit #11</u>	<u>TOTAL</u>
2005	49.91	52.08	530.24	2.30	634.69
2006	3.69	1.51	50.7	0.40	56.30
2007	6.28	5.31	97.69	0.28	109.56
2008	0	0	28.9	0.6	29.5

SO₂ Allowances Summary					
SO₂ Allowance Vintage	SO₂ Allowances Sold - YTD	SO₂ Allowances Available (Per Unit, Prior to Sale & Reconciliation)		Total SO₂ Tons Emitted – U3 and U11 YTD	SO₂ Allowances Balance
		<u>Unit #3</u>	<u>Unit #11</u>		
		2006	2725		
2007	2076	2585	138	98	549
2008	0	2585	138	30	2693
2009	0	2585	138	0	2723

CO₂ Allowances Summary*					
CO₂ Allowance Vintage	CO₂ Allowances Sold YTD	CO₂ Allowances Available (Per Facility, Prior to Sale)		Total CO₂ Tons Emitted	CO₂ Allowance Balance
		<u>McKee Run</u>	<u>VanSant</u>		
2009	0	60,128	2,056	0	62,184
2010	0	48,102	1,645	0	49,747
2011	0	36,077	1,234	0	37,311
2012	0	27,058	925	0	27,893
2013	0	15,032	514	0	15,546

* Note: All CO₂ allowance values are estimated at this time.

2.0 Financial

Financial – Current Month

<i>Month – October 2008</i>			
	Actual	Budget	Variance
<i>Personnel</i>	225,220	229,974	4,756
<i>Administrative</i>	65,899	80,574*	14,675
<i>EH & S</i>	2,876	2,000	(876)
<i>Maintenance Expense</i>	49,971	31,850	(18,121)
<i>Operations Expense</i>	135,755	64,300	(71,455)
Total	\$479,722	\$408,698*	(\$71,024)

*-Includes Operator Incentive Expense (Not Invoiced until end of fiscal year)

Financial – Fiscal Year to Date

<i>Number of Months – 4</i>			
	Actual	Budget	Variance
<i>Personnel</i>	908,737	1,045,430	136,693
<i>Administrative</i>	408,835	479,195*	70,360
<i>EH & S</i>	3,460	7,500	4,040
<i>Maintenance Expense</i>	81,504	122,900	41,396
<i>Operations Expense</i>	294,990	373,150	78,160
Total	\$1,697,527	\$2,028,175*	\$330,648

*-Includes Operator Incentive Expense (Not Invoiced until end of fiscal year)

2.1 Variance analysis

For the month of October, an unfavorable variance of \$71,024 was achieved due to the following:

PERSONNEL EXPENSES – A favorable variance of \$4,755 was achieved by realizing lower labor costs due to fill-in shift coverage expenses.

ADMINISTRATIVE EXPENSES – A favorable variance of \$14,675 was achieved primarily due to lower insurance expenses costs than budgeted and operator incentive not invoiced(will be invoiced in June).

ENVIRONMENTAL, HEALTH, AND SAFETY EXPENSES – An unfavorable variance of \$876 was realized because of the newly implemented fire retardant uniform rentals for plant employees.

MAINTENANCE EXPENSES- Unfavorable variance of \$18,122 was due to the purchase of spare low NOx gas tips for all three McKee Run unit burners as part of the McKee Run Pollution Remediation Project and McKee Run battery charger replacement due to equipment failure.

OPERATING EXPENSES – An unfavorable variance of \$71,455 was realized when the previous months' auxiliary electric and water usage invoices which were not paid in September were instead paid in October.

YEAR-END EXPENSES- A favorable variance of \$330,648 has been realized for this year-to-date. We are currently forecasted at \$5,774,863 expensed versus \$5,921,643 budgeted for a 97.52% expense-to-to-budget rate. This includes the updated Employee Incentive and Employee Incentive Burdens which will be invoiced in June 2009.

3.0 Operations

Unit Operations / Outages / Trips

- During the month, there were no unit dispatches of any of the McKee Run units due to the Pollution Remediation/Oil Conversion Project Outage. Unit #11 at VanSant was available for the month of October but was not dispatched.

<i>Month – October 2008</i>							
		McKee Unit 1	McKee Unit 2	McKee Unit 3	MRS Facility	VanSant Unit 11	Total All Units
<i>Capacity</i>	MW	17	17	102	136	39	175
<i>On Line Hours</i>	Hrs	0	0	0	0	0	0
<i>Starts</i>	#	0	0	0	0	0	0
<i>Gross Generation</i>	MWh	0	0	0	0	0	0
<i>Net Generation</i>	MWh	0	0	0	0	0	0
<i>Total Auxiliaries</i>	MWh	25.012	25.012	138.818	188.842	1.767	190.609
<i>Auxiliaries purchased</i>	MWh	25.012	25.012	138.818	188.842	1.767	190.609
<i>Fuel Gas Used</i>	MMBTU	0	0	0	0	0	0
<i>Fuel Oil Used</i>	MMBTU	0	0	0	0	0	0
<i>Fuel Oil Used</i>	Gallons	0	0	0	0	0	0
<i>Total Fuel</i>	MMBTU	0	0	0	0	0	0
<i>Net Heat Rate</i>	BTU/KWh	0	0	0	0	0	0
<i>Unit Trips</i>	#	0	0	0	0	0	0
<i>Capacity Factor</i>	%	0	0	0	0	0	0
<i>Availability Factor</i>	%	0	0	0	0	100	25
<i>Commercial Unavailability (CU)</i>	%	0	0	0	0	0	0
<i>Planned Outage Hours</i>	Hours	737.00	737.00	737.00	2,211.000	0	2,211.000
<i>Maintenance Outage Hours</i>	Hours	0	0	0	0	0	0
<i>Forced Outage Hours</i>	Hours	0	0	0	0	0	0
<i>Reserve Shutdown Hours</i>	Hours	7.00	7.00	7.00	21.000	744.00	765.000
<i>HW Boiler Gas Usage</i>	MMBTU				1,219		1,219
<i>Pilot Gas Usage</i>	MMBTU	0	0		0		0

Note: Does not include HWB or Pilot Gas. Fuel usage numbers are taken from fuel flow instruments

2008-2009 Fiscal Year-to-Date (4 Months)

		McKee Unit 1	McKee Unit 2	McKee Unit 3	MRS Facility	VanSant Unit 11	Total All Units
Capacity	MW	17	17	102	136	39	175
On Line Hours	Hrs	0	0	0	0	0	0
Starts	#	0	0	0	0	0	0
Gross Generation	MWh	0	0	0	0	0	0
Net Generation	MWh	0	0	0	0	0	0
Total Auxiliaries	MWh	94.062	94.063	1,378	1,567	5.596	1,573
Auxiliaries purchased	MWh	94.062	94.063	614.878	803.003	4.788	807.791
Fuel Gas Used	MMBTU	0	0	51,381	51,381	9,754	61,135
Fuel Oil Used	MMBTU	0	0	45,213	45,213	6,273	51,486
Fuel Oil Used	Gallons	0	0	297,805	297,805	45,328	343,133
Total Fuel	MMBTU	0	0	96,593	96,593	16,028	112,621
Net Heat Rate	BTU/KWh	0	0	11,801	11,801	12,931	11,949
Unit Trips	#	0	0	0	0	0	0
Capacity Factor	%	0	0	2.72	2.72	1.08	1.82
Availability Factor	%	75.03	75.03	75.03	75.03	100	81.28
Commercial Unavailability (CU)	%	0	0	0	0	0	0
Planned Outage Hours	Hours	737	737	737	737	0	2,211
Maintenance Outage Hours	Hours	0	0	0	0	0	0
Forced Outage Hours	Hours	0	0	0	0	0	0
Reserve Shutdown Hours	Hours	2,215.000	2,215.000	2070.734	6,500.734	2915.916	9416.650
HW Boiler Gas Usage	MMBTU				5,158		5,158
Pilot Gas Usage	MMBTU	0	0		0		0

VanSant Lifetime through 10/31/08

	Actual Starts	Factored Starts	Fired Hours
VanSant	1189	2000.15	3,912.2
Since HGP - Dec 2004	140	332.45	528.578

Fuel Oil Inventory

	Monthly Inventory (Start)	Monthly Inventory (End)	Fuel Purchases (Month)	Monthly Inventory (Change)	FY 08-09 Inventory (Start)	Fuel Purchases (YTD)	FY 08-09 Inventory (Change)
McKee Run (#6 Fuel Oil to #2 Fuel Oil)	134,852	49,630	49,781*	(85,222)	426,048	49,781*	(376,418)
VanSant (#2 Fuel Oil)	56,633	111,412	56,801	54,779	99,950	56,801	11,462

Note: As measured by tank level instruments. Tank levels may change due to oil temperature.

Note: VanSant oil tank level gauge calibrated on 8-19-08.

Note: * - #6 Fuel Oil was sold (approx. 122,000 gallons) and #2 Fuel Oil was purchased

Capacity Testing – FY 2008-2009					
<i>Summer 2008 (June 1- Aug 31)</i>			Winter 2008-2009 (Dec 1- Mar 1)		
Unit	Rated Net Capability (MW)	Reported Net Capability (MW)	Unit	Rated Net Capability (MW)	Reported Net Capability (MW)
<i>1</i>	17	17.09	1	17	NT
<i>2</i>	17	17.55	2	17	NT
<i>3</i>	102	102.72	3	102	NT
<i>VanSant</i>	39	40.09	11	40	NT
Total	175	177.45	Total	176	0

Note: NT depicts a unit that has not completed capacity test for the PJM Demonstration Period in FY 2008-2009. It is expected that all units will be entered into the PJM Winter Capacity Test Exemption Program.

Team Report:

The operators continue to use the plant readiness program for training and refreshing their plant knowledge on different systems to improve the plant’s reliability. Some of the training involved promotes teamwork with other staff members to work together to find a solution and to promote further discussions on equipment operation. The operators also use the GPi Learning courses to improve their knowledge and skills.

Three senior operators attended Fred Pryor leadership training on Coaching Skills for Managers and Supervisors on October 15th. This training was designed to improve their leadership and coaching skills for the future.

Operations also had training on the new CEMS software that was installed at McKee Run and VanSant in October. Every operator that was available had an opportunity to learn more about the new program software and computer display screens with a VIM Technologies representative.

The operators are continuing their on line training for PJM Systems Generation Operator and plans are being made to set up a training session in the first part of next year.

4.0 Maintenance

During the month of October, plant maintenance staff continued addressing the backlog of work orders and focused on keeping all units available to our client. Seventy –one work orders were issued during the month, with thirty-one work orders being completed during the month.

The table below summarizes the monthly work order activities.

<i>Work Order Report</i>				
October - 08				
Priority #	Outstanding From Previous Months	Issued This Month	Completed This Month	Outstanding at the end of the month
P1	0	1	0	1
P2	1	1	0	2
P3	7	3	6	4
P4	14	16	10	20
P5	25	11	10	26
P6	0	0	0	0
P7	3	0	2	1
P8	0	0	0	0
P9	4	2	0	6
P6 - 1	0	0	0	0
P6 - 2	0	0	0	0
P6 - 3	0	0	0	0
P6 - 4	1	0	0	1
P6 - 5	0	0	0	0
P6 - 6	0	0	0	0
P6 - 7	0	0	0	0
P6 - 8	0	0	0	0
PM	19	37	3	53
Totals	74	71	31	114

Note: PM's are included in the priority totals

Notable activities during the month include:

- 1) Completed the installation of new low NOX gas burner spuds for all MRGS units as part of the Pollution Remediation Project which began on October 1, 2008.
- 2) Installed new CEMS sample line.
- 3) Drained #1 Fuel oil tank and flushed tank/pipe lines with #2 Diesel fuel.
- 4) Installed new burner shrouds on unit 3 boiler.
- 5) Installed new temperature probe for the City of Dover Radio room.
- 6) Removed insulation from all fuel oil heaters in preparation of mechanical contractor work.
- 7) Installed new Beck air register drive units.
- 8) Contracted out work for the asbestos removal for the areas around the unloading , transfer and burner pump.
- 9) Electrical contractor mobilized to start the modifications associated with the Pollution Remediation Project.

5.0 Capital Improvement Projects (CIP)

Project Number	Description	Update
EG0801	MR Fire Protection System Upgrades	<p>Progress: Project deferred to 2009 to investigate an alternative technical approach.</p> <p>Schedule: Installation now projected to be June 2009</p>
EG0804	MR Pollution Remediation Equipment	<p>Progress: Installation phase of the project was officially started as the planned outage of all units commenced October 1. Engineering work is 95% complete. Critical materials were received throughout the month. Major equipment not yet received include the Unit 1 and 2 burner pumps.</p> <p>Schedule: On track for fall 2008 outage installation and June, 2009 compliance testing</p>
EG0901	MR Unit 3 Continuous Emissions Monitor (CEM)	<p>Progress: Bids received from the vendors higher than expected resulting in increased project estimate from original. Equipment and installation PO issued. REGGI reporting requirements will now be incorporated into project scope</p> <p>Schedule: Replacement was completed in October 2008.</p>
EG0902	VS Unit 11 Continuous Emissions Monitor (CEM)	<p>Progress: Bids received from the vendors higher than expected resulting in increased project estimate from original. Equipment and installation PO issued. REGGI reporting requirements will now be incorporated into project scope.</p> <p>Schedule: Replacement was completed in October 2008.</p>
EG0903	MR Unit 3 Continuous Opacity Monitor (COM)	<p>Progress: This same work was performed on VanSant unit in 2008. We are expecting to utilize the same vendor that did the work on Van Sant.</p> <p>Schedule: Unit 3 replacement equipment has been ordered to be completed in fiscal year 2008-09.</p>

EG0904 MR & VS Arc Flash Analysis **Progress:** Phase one will determine scope and costs to implement which will provide input to cost benefit analysis/ justification to proceed with the second phase. Task statement defining the scope of work currently being developed

Schedule: The initial phase of the project to be completed no later than June of 2009 and the second phase to complete in May 2010.

5.1 CIP Budget

Project Number	Description	Original Budget (\$ X 1000)	Latest Estimate (\$ X 1000)
EG0801	MR Fire Protection System Upgrades	50	50
EG0804	MR Pollution Remediation Equipment	3800	2600
EG0901	MR Unit 3 Continuous Emissions Monitor (CEM)	30	50
EG0902	VS Unit 11 Continuous Emissions Monitor (CEM)	30	50
EG0903	MR Unit Continuous Opacity Monitor (COM)	30	30
EG0904	MR & VS Arc Flash Analysis	125	125

The current total for Project EG0804 expensed to date is \$561,036.48. The expenses for the month of October were \$227,809.04.

6.0 General Plant Information

Training

Plant employees continue working on their General Physics topics during the month. The inclusion of these courses has provided opportunities for increased knowledge of plant operations, to satisfy OSHA and PJM requirements, and to build a solid foundation for cross training employees at the City of Dover generation facilities. These courses are included in the Employee Qualification program that will help prepare operators for advancement within the line of progression jobs.

For the coming year, several Seniors Operators have been tasked with achieving PJM Generation Systems Operator certification. Operations staff members continue to help calibrate gauges and provide other support in an effort to aid maintenance and provide cross training in different areas of the plant. Operations personnel continue dry run training on the units as part of our Plant Readiness program.

Aaron Jester and Eric Carrow continue to work with the maintenance department when they are not needed for operations support. Other operations staff will be utilized during the coming months to support various outage related activities while the McKee Run Facility makes the conversion from #6 fuel oil to #2 fuel oil and installs boiler modifications.

Personnel

Plant staffing for shift personnel has been reduced in order to provide additional manpower support to the outage. During the course of the outage, shift staffing has been reduced to two men per shift except for Saturday and Sunday day shift when three men will be on shift. The three man shift is to ensure the plant is manned properly should the combustion turbine be dispatched.

The Maintenance Supervisor Position was filled by an in-house candidate, Phil Marvel, who prior to accepting the position, was the Plant Electrician. With Mr. Marvel assuming the new position, it has now created a void in the maintenance team that the plant is actively working to fill. The position of IC/E Technician has been posted on the NAES website and in several of the local papers. Applicant screening and the conducting preliminary interviews will be conducted by a three-person team of Phil Kosek, Ray Lavender and Phil Marvel.

Other Events

As part of the Oil Conversion Project, Pace Global on behalf of the City of Dover, contracted with FCC to purchase the remaining #6 fuel oil inventory. Work was coordinated with plant personnel to unload the tank into waiting FCC trucks via existing plant oil pumps until suction was lost and the pumps could no longer be used. Vacuum trucks were then supplied by FCC to remove the remaining oil from the tank and from the plant's oil lines. New oil (#2 w/0.05% sulfur) was then purchased for use as the flushing medium for the oil lines. Progress was being made in the flushing process when an apparent leak was identified on the pipe section which passes through the tank berm. The appropriate authorities were notified regarding the leak and work commenced under the guidance of Compliance Environmental. It is estimated the spill was less than one hundred gallons.

Approximately 350 tons of contaminated soil was unearthed and is presently onsite waiting for soil sample results to be returned in order for the soil to be disposed of at an appropriate landfill. Reinstallation of the pipe is slated to occur in November. Information of approved pipe materials has been provided by the Tank Management Section of DNREC who has been most helpful in the entire process. The approved materials have been purchased, some of which have been already received.

Progress continues on the Pollution Remediation Project which includes the fuel oil conversion from #6 fuel oil to #2 fuel oil. On October 1, Units 1, 2 and 3 went into a planned outage scheduled to last until December 31, although it is expected that the conversion will be completed in early December. Tasks completed during the month included the change out of gas spuds to a low NOx design on all three units, installation of fixed burner shrouds and Beck Drives to provide improved combustion control at the burner, installation of new gas scanners, burner throat repairs, and the installation of inserts in the OFA ports to provide higher velocity OFA air penetration into the boiler. Work continues to progress on modifying the oil and steam systems at the burner deck levels, modifications in the burner pump room to eliminate the oil heaters, replace several of the Unit 1/2 burner pumps, replacement of the fuel oil transfer and unloading pumps and the installation of the fuel oil unloading meter. While work is still progressing, some parts are still on back order although it is not expected these parts will hold up progress of the project.

As part of the operational testing that will be performed on Units 1, 2 and 3 at the conclusion of the oil conversion and boiler modifications, system checklists are being developed to ensure all equipment is fully operational and that the unit(s) are able to meet load expectations. In addition, operator training will be a prime focus throughout the entire process.

The replacement of the CEMS computers at McKee Run and VanSant Generating Stations were completed. These computers were installed to comply with EPA reporting requirements which specified that EDRs be submitted in .xml format.

The underground oil piping system at the VanSant facility has an installed and operating cathodic protection system. Recent testing of this system revealed a lack of adequate protection along with a finding of several defective insulating bolts. Repair and replacement of system components resulted in restoring system functionality. As part of the DNREC AST Regulation, pressure testing of the pipe is required and will take place in November.

<i>Calendar of Events</i>	
	<i>Date</i>
<i>McKee Run Units 1, 2 and 3 Outage – Oil Conversion Project</i>	October 1, 2008 – December 31, 2008
<i>PJM Winter Capacity Demonstration Period</i>	December 1, 2008 – February 28, 2009
<i>EIA Reporting Requirements</i>	February 1, 2009
<i>Title V Annual Certifications due</i>	February 1, 2009

7.0 Summary of NAES Performance to Date

Plant Performance FY 2008-2009						
Measure	Month		Year to Date		YTD Incentive	FY Maximum Incentive
Commercial Unavailability (CU)	0%		0%		\$85,863	\$85,863
Safety	0		0		\$16,099	\$16,099
Environmental	0		0		\$16,099	\$16,099
Capacity Tests Completed	Summer	Winter	Summer	Winter		
Unit 1	No	No	Yes	No	\$1,610	\$3,220
Unit 2	No	No	Yes	No	\$1,610	\$3,220
Unit 3	No	No	Yes	No	\$9,660	\$19,319
Unit 11	No	No	Yes	No	\$3,220	\$6,440
Total YTD Incentive %	89.29%		Total YTD Incentive		\$134,161	\$150,261

APPENDICES

I. PJM INVOICE BREAKDOWN

The PJM bill is a record of all Electricity Transactions, Transmission Services, Ancillary Services and Miscellaneous fees that allow the PJM to operate. Below is a list of the line items on the PJM bill including all generator activity.

PJM Bill Line Items	Load	Gen	Net
Day Ahead Energy	\$0.00	(\$365,257.25)	(\$365,257.25)
Realtime Energy	\$0.00	\$93,386.84	\$93,386.84
Transmission Losses Credits	\$0.00	\$76,826.60	\$76,826.60
Network Integration Transmission Service Charges	\$0.00	(\$263,622.14)	(\$263,622.14)
Inadvertent Interchange Charges	\$0.00	(\$877.07)	(\$877.07)
Regulation Charges	\$0.00	(\$26,529.76)	(\$26,529.76)
Synchronized Reserve Charges	\$0.00	(\$14,037.81)	(\$14,037.81)
Balancing Operating Reserves Charges	\$0.00	(\$3,193.18)	(\$3,193.18)
Day Ahead Operating Reserves Charges	\$0.00	(\$6,375.54)	(\$6,375.54)
Day-ahead Scheduling Reserve	\$0.00	(\$357.29)	(\$357.29)
Synchronous Condensing Charges	\$0.00	(\$809.61)	(\$809.61)
Reactive Services Charges	\$0.00	(\$2,330.30)	(\$2,330.30)
Meter Correction Charges	\$0.00	\$198.94	\$198.94
Day-ahead Economic Load Response Program Charges	\$0.00	\$0.00	\$0.00
Real-time Economic Load Response Program Charges	\$0.00	\$0.00	\$0.00
Balancing Operating Reserves Credits	\$0.00	\$0.00	\$0.00
Day Ahead Operating Reserves Credits	\$0.00	\$0.00	\$0.00
Locational Reliability Charges	\$0.00	(\$928,450.00)	(\$928,450.00)
Capacity Transfer Rights Credits	\$0.00	\$32,628.12	\$32,628.12
Capacity Resource Deficiency Credits	\$0.00	\$1,862.17	\$1,862.17
Demand Response and ILR Compliance Penalty Credits	\$0.00	\$0.00	\$0.00
RPM Auction Credits	\$765,406.12	\$0.00	\$765,406.12
Auction Revenue Rights Credits	\$0.00	\$75,373.09	\$75,373.09
Synchronized Reserve Credits	\$0.00	\$0.00	\$0.00
PJM Scheduling System Control and Dispatch Service Charges	\$0.00	(\$5,721.13)	(\$5,721.13)
Transmission Owner Scheduling System Control and Dispatch Service Charges	\$0.00	(\$4,418.85)	(\$4,418.85)
Reactive Supply and Voltage Control from Generation Sources Service Charges	\$0.00	(\$23,573.31)	(\$23,573.31)
Black Start Service Charges	\$0.00	(\$1,230.26)	(\$1,230.26)
North American Electric Reliability Corporation (NERC) Charge	\$0.00	(\$333.04)	(\$333.04)
Reliability First Corporation (RFC) Charges	\$0.00	(\$582.82)	(\$582.82)
Expansion Cost Recovery Charges	\$0.00	(\$451.05)	(\$451.05)
Transmission Enhancement Charges - Sept 2008	\$0.00	(\$6,397.60)	(\$6,397.60)
Black Start Service Credits	\$5,728.89	\$0.00	\$5,728.89
Non-Firm Point-to-Point Transmission Service Credits	\$0.00	\$2,997.70	\$2,997.70
Generation Deactivation	\$0.00	\$0.00	\$0.00
Market Monitoring Unit (MMU) Funding	\$0.00	(\$321.16)	(\$321.16)
Organization of PJM States, Inc. (OPSI) Funding	\$0.00	(\$32.74)	(\$32.74)
FERC Annual Recovery	\$0.00	(\$2,456.21)	(\$2,456.21)
PPA	\$0.00	(\$7,422.11)	(\$7,422.11)
	\$771,135.01	(\$1,381,506.77)	(\$610,371.76)

II. LOAD, ALL IN ENERGY AND ALL IN COST OF SERVICE TABLE

	Budget Load (MWh)	Actual Load (MWh)	Budget AIE (\$/MWh)	Actual AIE (\$/MWh)	Actual YTD AIE (\$/MWh)	Budget AICS (\$/MWh)	Actual AICS (\$/MWh)	Actual YTD AICS (\$/MWh)
Jul	81,189	81,060	\$92.30	\$94.46	\$94.46	\$94.85	\$97.04	\$97.04
Aug	82,798	73,039	\$92.29	\$91.36	\$92.99	\$101.51	\$101.39	\$99.10
Sep	67,000	66,214	\$85.81	\$89.01	\$91.80	\$93.47	\$95.27	\$97.89
Oct	61,170	58,391	\$87.47	\$87.60	\$90.92	\$96.39	\$97.90	\$97.82
Nov	58,037		\$87.62			\$96.60		
Dec	59,534		\$87.25			\$97.05		
Jan	64,805		\$88.79			\$101.90		
Feb	63,547		\$89.48			\$77.20		
Mar	58,753		\$86.98			\$95.92		
Apr	56,824		\$85.94			\$96.34		
May	62,655		\$85.52			\$93.92		
Jun	72,496		\$88.32			\$100.05		

III. GLOSSARY

All In Unit Energy Cost ("AIE") accounts for the wholesale energy costs **excluding** capacity obligations, capacity credits for Dover-owned generation, generation revenues, generating plant costs, the black start ancillary services credit for the Van Sant plant, and revenues associated with the sale of emission allowances. The AIE includes the costs from settling the hedged or forward transactions; the energy bought on the ISO (Independent System Operator or PJM) day-ahead to cover the open position (un-hedged); load following costs associated with balancing the actual load in the ISO real-time market; energy management service related fees; the ISO transmission charges and credits to load serving entities; the ISO ancillary services charges such as generation regulation, spinning reserve, and reactive power; and the ISO administrative charges and cost of service recovery fees.

All In Cost of Service ("AICS") accounts for the net cost of wholesale power to the City of Dover Electric Utility. The AICS starts with the AIE and adds the costs or credits from capacity obligations, capacity credits for Dover-owned generation, generation revenues, generating plant costs, the black start ancillary services credit for the Van Sant plant, and revenues associated with the sale of emission allowances.

Black Start is a generating ancillary service that is the process of restoring a generating plant to service without the support of an external power supply to power auxiliary equipment needed for start up operations.

Capacity UCAP Obligated Purchased is the obligation and payment by all load serving entities in PJM including Dover for the Unforced Capacity (UCAP) requirement from PJM that satisfies the PJM reserve requirements.

Generation Capacity Credit: is the credit provided to generators for supply capacity to the system. The price is determined by the PJM Reliability Pricing Market auction process that includes three auctions for each capacity year.

Generation Production Margin accounts for the variable margin excluding variable O&M and emissions. The Generation Production Margin is calculated by taking the PJM revenues credited to the plant including any balancing charges or credits less the fuel costs. Generation Production Margin includes both "Economic and reliability dispatch" and "Testing." Economic and reliability dispatch equals the margin achieved when Dover's generating plants are dispatched by PJM for either economic dispatch (the system energy price is greater than the Dover bid price) or reliability dispatch whereby PJM pays the generating cost of the plants for the hours the plant is run to support the system. Generation Testing equals the Generation Production Margin associated with testing. This is usually expected to be a negative margin because the plant is potentially being dispatched / run when energy prices do not cover its costs.

Non-Production Revenue equals the credits from PJM to Dover for Generation Capacity Credit, the Black Start Revenue and the sales by Dover of Emission Allowances.



Energy Efficiency and Conservation Block Grant

For years, our nation's cities have been leading the way in innovation by implementing energy conservation and environmental protection programs to support their communities and the national economy.

Last year, Congress and the President enacted historic comprehensive energy reform legislation aimed at moving the U.S. toward greater energy independence and security, increasing the production of clean renewable fuels, and increasing the energy efficiency of products, buildings and vehicles.

The legislation included the creation of a new Energy Efficiency and Conservation Block Grant program that would provide grants to cities, counties, and states for innovative practices designed to achieve greater energy efficiency and lower energy usage. These grants would fund local initiatives, including building and home energy conservation programs, energy audits, fuel conservation programs, building retrofits to increase energy efficiency, "smart growth" planning and zoning and alternative energy programs. The law authorizes an appropriation of \$2 billion a year through 2012.

Message to Congress

- *Thank you for enacting comprehensive energy legislation, the Energy Independence and Security Act of 2007.*
- *A variety of challenges* have brought increased attention and timeliness to sustainability, including the threat of climate change, rising energy prices, and the depletion of natural resources.
- *Sustainability is a defining issue of our time*, representing the broad notion that all activities should take into account implications for people and the environment so that our actions meet the needs of the current generation without compromising future generations.
- *Our nation's cities are innovators* in implementing energy conservation and environmental protection programs to support their communities and the national economy.
- *Local governments recognize they have a central role to play in affecting change*, but need the support and cooperation of the federal government. By including funds for the block grant program, municipal leaders will be able to expand their efforts to support building and home energy conservation programs, and improve energy efficiency.

Request to Congress

- **Appropriate** \$2 billion for fiscal year 2009 to fund the Energy Efficiency and Conservation Block Grant.



Conference Focuses on Appropriations for New Program

By Conference Staff

When President Bush signed the "Energy Independence and Security Act of 2007" into law (PL 110-140), a new \$10 billion federal partnership with the nation's cities, counties and states

New USCM Energy Block Grant Program Comes Online Just in Time

was established. This is one that strengthens and further empowers the efforts of mayors and other local elected officials as they take local actions to reduce the nation's energy dependency, promote increased energy efficiency, develop greener energy supplies and further climate protection goals.

Enactment of this new initiative, called the Energy Efficiency and Conservation Block Grant Program (EECBG), is the product of a nearly yearlong effort by The U.S. Conference of Mayors and its member mayors, as first unveiled one year ago during the 75th Winter

Meeting in the Conference's 10-Point Plan.

The new law authorizes \$2 billion annually over five fiscal years (FYs 2008-2012) for block grant assistance to cities, counties and states. A graphic depiction of how these resources are to be allocated to support city- and county-based activities is provided in the chart below. With the EECBG program and funding authorization in place, the Conference and its member mayors are now working to secure actual funding (i.e., appropriations) for the program, which is among the top priorities before mayors who

will be participating in the 76th Winter Meeting, to be held January 23-25, 2008 in Washington, DC.

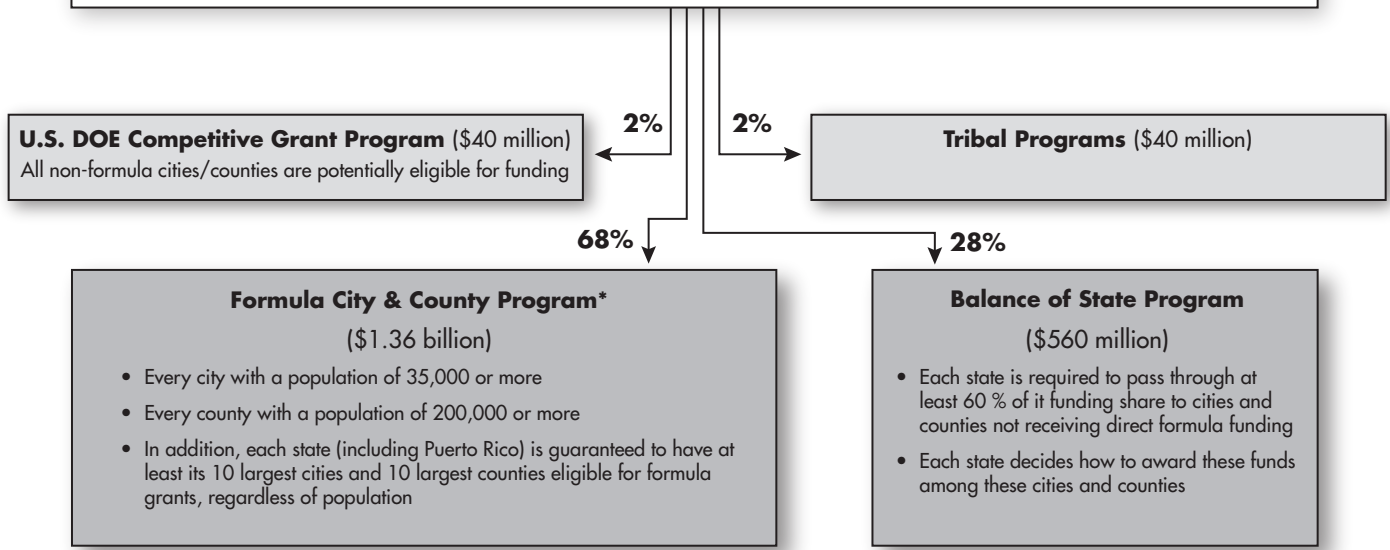
Specifically, this program emphasizes bottom-up, community-based strategies to help the nation meet its energy and climate protection challenges, an approach that Conference leaders identified early on as a critical element of any successful national energy strategy.

Funding for the EECBG program takes on even greater immediacy, as the nation's already weakening economy absorbs additional ill effects from high energy costs, largely driven

EECBG Funding Allocations

\$2 Billion Annual Appropriation

First year funding can be used for strategy development; funding in subsequent years is only for implementation of city and county strategies approved by U.S. DOE.



* Law (PL 110-140) directs U.S. DOE to develop a formula for allocating block grant funds among these cities and counties, with population factors a key consideration.

by record oil prices. Already, Congressional and Administration leaders are calling for action on an economic stimulus package and there is renewed attention to the need for more immediate and more dramatic efforts to curb the nation's energy use, especially petroleum.

In addition, when the mayors' campaign to enact this block grant program was first initiated, slightly more than 350 mayors had signed The U.S. Conference of Mayors Climate Protection Agreement. Currently, 773 mayors have joined on as signatories. Importantly, the five-year authorization period for the EECBG program is nearly concurrent with the five-year period, ending December 31, 2012, which is the Agreement's target date for achieving emission reduction goals set forth in the Kyoto Protocol.

mitment to prompt EECBG funding as a response to these conditions.

While the following provides a brief overview of the key features of the EECBG program, the actual legislative language can be found in Title V (Sections 541-548) of Public Law 110-140.

EECBG Modeled after HUD's CDBG, with Differences

The new EECBG program is largely modeled after the highly-successful Community Development Block Grant (CDBG) program, which was first enacted in 1974.

Like CDBG, the largest share of total funding (i.e., 68 percent) is allocated directly by formula to eligible cities and counties. Similarly, each state receives a funding share (i.e., 28 percent) to serve cities and counties not directly eligible for formula funds.

tary, and the factors used to allocate funds among formula recipients are different as well, with the new law requiring the Energy Secretary to develop a formula based largely on population factors.

As depicted in the accompanying chart, two percent of program funding is reserved to Indian tribes, and another two percent is retained by the Secretary of Energy to support a competitive grant program. In addition to local funds provided by formula or through the state, any non-formula city or county can also apply to the Secretary for funds under this program. However, the Secretary is directed to give priority to localities applying for funds from less populated states (i.e., two million or less) or to local projects that result in "significant energy efficiency improvements or reductions in fossil fuel use."

A key trigger in the law is a directive that the Energy Secretary must publish in the Federal Register, not later 90 days from the beginning of each fiscal year for which grants are to be made available, the formula to distribute funds under this program. In effect, if Congress provides appropriations, either in a supplemental measure and/or in a FY 2009 appropriations bill, the Secretary would have to move immediately to issue the formula for the program.

Once a formula city or county receives its first year funding, it must develop an Energy Efficiency and Conservation Strategy pursuant to the requirements of the law and submit it within one year of receipt of these funds. In subsequent years, additional funding is limited to implementation of an approved strategy.

Within two years of receipt of an initial grant, each formula recipient must report to the Secretary on the status of its implementation of the strategy, including an assessment of the energy efficiency gains. Annual reporting is required each year thereafter.

The new law generally identifies three key goals for recipients of these block grant funds: 1) reduce fossil fuel emissions, 2) reduce total energy use; and 3) improve energy efficiency in the transportation, building, and any other appropriate sectors. It supports the achievement of these goals by authorizing a broad range of local programs, projects and other activities that can be funded with available block grant resources (see Sec. 544 of PL 110-140).

Enactment of this new initiative, called the Energy Efficiency and Conservation Block Grant Program (EECBG), is the product of a nearly yearlong effort by The U.S. Conference of Mayors and its member mayors, as first unveiled one year ago during the 75th Winter Meeting in the Conference's 10-Point Plan.

Mayors participating in the Conference's upcoming Winter Meeting, which will feature a special session on the program, will be working to make sure that Congressional leaders and other policy-makers make a strong com-

Also, funds provided under the EECBG program require no matching share.

Unlike CDBG, the Secretary of the U.S. Department of Energy is the program administrator, not the Housing and Urban Development Secre-

Key Process Steps

With enactment of the new law, the U.S. Department of Energy is now beginning its preparations for issuing various rules, policies and guidance to support the startup of the program.

Direct Formula City and County Recipients Under the New EECBG Program*

State†	City Recipients	County Recipients	Total Recipients
Alabama	12	10	22
Alaska	10	10	20
Arizona	20	10	30
Arkansas	10	10	20
California	220	27	247
Colorado	20	10	30
Connecticut	16	8	24
Delaware	10	3	13
Florida	69	23	92
Georgia	16	10	26
Hawaii	1	5	6
Idaho	10	10	20
Illinois	51	10	61
Indiana	23	10	33
Iowa	13	10	23
Kansas	12	10	22
Kentucky	10	10	20
Louisiana	10	10	20
Maine	10	10	20
Maryland	10	10	20
Massachusetts	34	10	44
Michigan	31	10	41
Minnesota	22	10	32
Missouri	17	10	27
Mississippi	10	10	20

State†	City Recipients	County Recipients	Total Recipients
Montana	10	10	20
Nebraska	10	10	20
Nevada	10	10	20
New Hampshire	10	10	20
New Jersey	23	15	38
New Mexico	10	10	20
New York	18	18	36
North Carolina	22	10	32
North Dakota	10	10	20
Ohio	34	13	47
Oklahoma	11	10	21
Oregon	14	10	24
Pennsylvania	14	18	32
Rhode Island	8	5	13
South Carolina	10	10	20
South Dakota	10	10	20
Tennessee	15	10	25
Texas	77	21	98
Utah	19	10	29
Vermont	10	10	20
Virginia	18	10	28
Washington	27	10	37
West Virginia	10	10	20
Wisconsin	20	10	30
Wyoming	10	10	20

* based on 2006 Census estimates of population

† Recipients in Puerto Rico not shown in table.

Delaware Energy Plan

Delaware residents recently [put on their energy-thinking caps on](#) to do their part in updating the state's energy plan. The same energy-conscious concerns apply for the Governor's Energy Advisory Council, as it strategizes at this critical juncture for energy use and distribution in formulating a new Delaware Energy Plan.

Pursuant to Delaware Code, 29 Del.C.Subch.II, "The Delaware Energy Act," the Governor's Energy Advisory Council has been charged with spearheading the updating of the Delaware Energy Plan every five years. The plan also includes a process for public input and measures for progress in attaining goals identified in the Energy Plan. The previous report developed by the Governor's Energy Task Force was released in fall of 2003, while the new plan is expected to be developed and completed by spring of 2009.

Five workgroups have been established in the energy planning process to review current policies, resources and to make recommendations to the Governor's Energy Advisory Council for Delaware's future energy goals, targets and policies.

Workgroups

- [Reducing Energy Use](#)
- [Reducing the Environmental Footprint of Energy Used by Delawareans](#)
- [Reducing Transportation Energy Use](#)
- [Ensuring Efficient and Effective Energy Transmission and Distribution Systems](#)
- [Supporting and Growing Delaware's Clean Energy Businesses](#)

The Workgroups are to complete their work and report back to the Governor's Energy Advisory Council by December 31, 2008.

Supporting Materials

- [2003 Energy Plan "Bright Ideas for Delaware's Energy Future"](#)
- [Energy Task Force Report Executive Summary](#)
- [Ensuring Delaware's Energy Future - A Response to Executive Order Number 82](#)
- [Delaware's Electricity Future: Re-Regulation Options and Impacts](#)

Related links

- [Sustainable Energy Utility Task Force](#)
- ["Another Look at Delaware's Energy Future"](#) (pdf)

LESSONS FROM THE PIONEERS:
TACKLING GLOBAL WARMING AT THE LOCAL LEVEL



J O H N B A I L E Y
J A N U A R Y 2 0 0 7

I N S T I T U T E F O R L O C A L
S E L F - R E L I A N C E



Other publications from the New Rules Project of the
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by David Morris, June 2005

**A Better Way to Get From Here to There: A Commentary on the Hydrogen
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by David Morris, January 2004

All available at www.newrules.org

The Institute for Local Self-Reliance (ILSR) is a nonprofit research and educational organization that provides technical assistance and information to city and state governments, citizen organizations and industry.

Since 1974, ILSR has researched the technical feasibility and commercial viability of environmentally sound state-of-the-art technologies with a view to strengthening local economies. The Institute works to involve citizens, governments and private enterprise in the development of a comprehensive materials policy oriented toward efficiency, recycling, and maximum utilization of renewable energy sources.

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Cover graphic credit to Warren Getz.

Executive Summary

As of January 2007, 355 mayors in communities representing over 54 million Americans in 49 states have signed the U.S. Mayor's Climate Protection Agreement (formalized in June 2005). Participating cities agree to reduce community-wide greenhouse gas (GHG) emissions by 2012 to at least 7 percent below 1990 levels. The number of communities involved promises a diversity of strategies and a steep learning curve as communities learn from one another what works, and what doesn't work.

We surveyed the climate change activities in 10 cities to find out how well these "Kyoto cities" were doing in meeting their goals and what strategies and methodologies they were using. The overriding conclusion is that, despite their commitment and their elaboration of significant programs, reducing GHG emissions below 1990 levels will be a major challenge. Many cities will likely fail in their attempts unless complementary state and federal policies are put in place. Our findings include:

- The methodologies and assumptions used to create GHG inventories differ among communities, making comparisons between cities problematic. Convenient access to the data was sometimes lacking. A standard GHG estimation methodology is not yet in place, but useable models exist. Convergence and standardization may come soon. Transparency of assumptions is critical.
- In all cities, community-wide emissions have risen since 1990, sometimes dramatically. Based on progress to date, it is unlikely that more than one or two of our ten cities and quite possibly none, will reduce their GHG emissions 7 percent below 1990 levels by 2012. Overall emissions increases ranged from 6.5 percent to 27 percent from 1990 baseline measurements. An exception was Portland, Oregon, which reports a tiny 0.7 percent increase above the 1990 baseline.
- Almost all of the cities we surveyed were expecting to realize a significant portion of their GHG reductions as a result of actions taken by higher levels of government (e.g. a state-level renewable portfolio standard or an increase in federal fuel economy standards). Relying too heavily on strategies out of the city's direct control could stunt creative local solutions and inhibit the city's investments in energy-related projects that have ancillary economic and environmental benefits.
- Cities are not investing significant amounts of their own money to reduce GHG emissions. This may be understandable, given tight budgets, but cities should remember that energy-related investments, unlike many public investments, repay themselves, often in relatively short time frames.

Lessons from the Pioneers: Tackling Global Warming at the Local Level

John Bailey, Institute for Local Self-Reliance

January 2007

Introduction

In February 2005, the Kyoto Protocol went into effect. More than 140 nations formally committed to significantly reduce their greenhouse gas (GHG) emissions. The United States was a highly visible non-signatory. In response, Seattle's Mayor Greg Nickels challenged mayors across the country to adopt Kyoto-like reduction goals at the local level.

In June 2005, the U.S. Mayors Climate Protection Agreement was adopted by the U.S. Conference of Mayors.¹ As of January 2007, 355 mayors in communities representing over 54 million Americans in 49 states have signed the Agreement.² A number of these cities have had climate action plans in place for five years or more. A larger number have had long standing energy efficiency or energy conservation programs.

For 33 years, the Institute for Local Self-Reliance (ILSR) has focused on bottom up solutions for national and international problems. The willingness by over 350 U.S. cities to formally agree to do just that with regard to the planetary threat of climate change is a welcome initiative. The number of communities involved promises a diversity of strategies and a steep learning curve as communities learn from one another what works, and what doesn't work.

Insufficient time has passed to allow for a serious evaluation of the effectiveness and impact of these pioneering efforts. Nevertheless, ILSR believes there are lessons to be learned even at this juncture. Given the rapidly expanding number of cities signing on to the Agreement, we decided to undertake an initial investigation. Due to a lack of significant funding, we view this report as preliminary and hope it will spur others to undertake a more in-depth, comprehensive examination.

This report addresses the following questions:

- 1) How are the top "Kyoto cities" in the United States measuring success?
- 2) What strategies and methodologies have they embraced to achieve their goals?
- 3) How well are they doing?

"Climate change is the biggest environmental threat facing our planet. When it comes to climate change, we are all part of the problem – and part of the solution."

Seattle Mayor Greg Nickels

¹ Participating cities agree to reduce community-wide GHG emissions by 2012 to at least 7 percent below 1990 levels

² Signatories are online at <http://www.seattle.gov/mayor/>

To gather information, ILSR examined ten community-wide GHG reduction programs: Austin, TX; Ann Arbor, MI; Berkeley, CA; Boulder, CO; Cambridge, MA; Minneapolis, MN; Portland, OR; San Francisco, CA; Salt Lake City, UT; Seattle, WA. These cities were chosen in part because they are among the initiatives most visible in the media, in part because they are self-described as having strong and successful programs, and in part because experts cite these programs as among the most effective.

Findings

The overriding conclusion of our survey of these "Kyoto cities" is that, despite their commitment and their elaboration of significant programs, reducing GHG emissions below 1990 levels will be a major challenge. Many cities will likely fail in their attempts unless complementary state and federal policies are put in place. Most do not appear to be slowing their GHG emissions more than their state, or the national averages.

ILSR is strongly supportive of this effort but cities should be fully aware that the road ahead will not be easy.

1. Data gathering, reporting and availability.

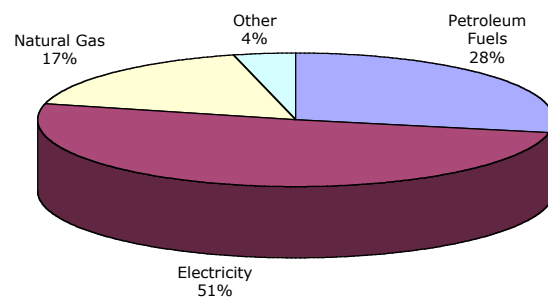
At present, these cities do not always gather and report GHG emissions in a consistent manner. This makes comparisons among cities difficult. In terms of individual cities, sometimes the data is inaccessible or presented in a manner that is difficult for the public to understand. Some of the cities described their frustrations and difficulties in having to rely on electric and gas utilities to supply community-wide energy consumption data.

Some cities break down data by sector (residential, commercial, industrial, solid waste and transportation); some by a combination of fuel source and sector (electricity, natural gas, motor fuels and solid waste). Some report GHG emissions both ways (e.g. Cambridge, Boulder). Most cities report GHG emissions in terms of metric tons of CO₂-equivalent emissions, but at least one city reported CO₂-equivalent emissions in short tons.³ To allow for maximum uniformity and compatibility, metric tons should be used.

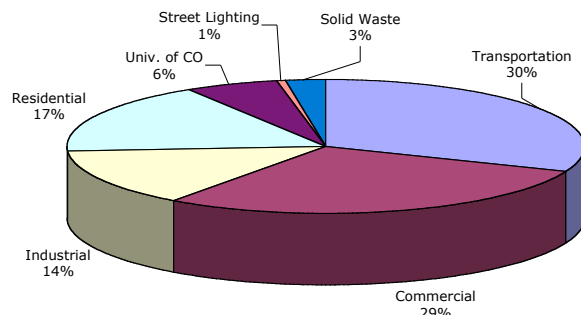
At a minimum, there should be two breakdowns of GHG emissions – one by sector and one by energy source. Cities should also break down energy consumption by energy source, sector and end use technology. The effort to reduce carbon emissions overlaps but is not the same as the effort to improve energy

GHG Emissions - Boulder, CO - 2004

By energy source:



By sectors:

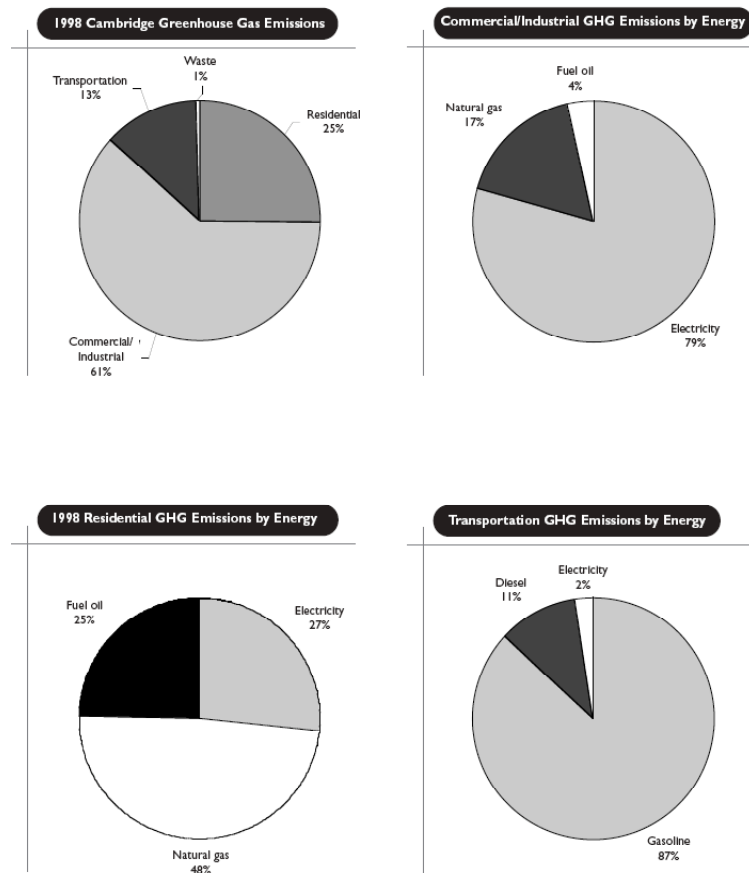


³ A short ton is 2,000 lbs, a metric ton is approximately 2,204.6 lbs. To allow for maximum uniformity and compatibility with emerging GHG registries and protocols, metric tons should be used.

efficiency since one can adopt a strategy primarily based on shifting to lower carbon or zero carbon fuels while maintaining the same overall energy consumption. In developing GHG emission numbers, cities invariably will begin with energy consumption data. They should make this available.

Boulder's inventory (completed by Econergy International Corporation) has a nice example of a graphical representation of GHG emissions that accompanies the raw numbers (see charts previous page). The charts provide a quick way to identify sectors' contribution to the community's emissions and which should receive the most attention.

GHG Emissions - Cambridge, MA



Econergy developed an inventory maintenance system that will make it easy for Boulder staff to update their GHG inventory on an annual basis. Boulder also negotiated an agreement as part of recent franchise negotiations with Xcel Energy to have community-wide energy consumption data downloaded directly to the city from the utility.

Cambridge's Climate Action Plan report goes a step further and provides an illustration of the fuel types used in each of the main sectors – residential, commercial/industrial and transportation.

Ann Arbor has compiled a comprehensive and transparent GHG emission inventory, thanks to the efforts of a dedicated group of graduate students at the University of Michigan's Natural Resources and Environment Program.⁴ The remarkably detailed report (nearly 500 pages) contains an extensive section explaining the methodology. Some city inventories we examined, even when they contained good data on overall emissions lacked any discussion of the methodology used to arrive at its quantitative conclusions.

⁴ Epstein, Seth; Malcoun, Joseph II; Oorbeck, Jenny; and Yamada, Mamoru, May 2003. "City of Ann Arbor Greenhouse Gas Emissions Reduction Strategy," Center for Sustainable Systems, University of Michigan. http://www.css.snre.umich.edu/css_doc/CSS03-02.pdf

Cities could copy Ann Arbor's strategy but it would require that the city have a staff person prepared to guide the project along. Local graduate schools should be eager to assist. Their students, as part of a class or independent project, could quickly, inexpensively and thoroughly gather the baseline emissions data and provide an easy to follow methodology to allow city staffers to regularly update the database. A note of caution that one of our cities pointed out is that a 500 page academic report will not be something that city staffers will want to hand to decision makers and expect them to develop policy around. Any such research analysis must be broken down into a manageable, succinct policy report.

Although city activities themselves generate only a tiny portion of the community's overall GHG emissions (typically less than 5 percent), cities should break out GHG emissions and reductions generated from their internal municipal operations in the reports.

In reporting on GHG reduction efforts, each of the cities' GHG reports illustrated individual municipal-level and community-wide actions that had been taken. Sometimes the lists contained dozens of actions: improving city-owned vehicle efficiency by purchasing hybrids, switching to LEDs for traffic signals, tightening city government and community-wide building energy codes, expanding public transit, expanding recycling and capturing methane. However, most lacked a breakdown of municipal-only GHG emissions over time. Such data is important because the municipal corporation must be the leader and model for community-wide GHG reduction initiatives. The city must clearly demonstrate that large GHG reductions are possible, especially in existing buildings.

Perhaps most importantly, several cities lacked a data base sufficient to allow city officials or interested researchers to measure the community's progress and performance. Of the 10 cities examined, three either had no baseline or current GHG inventory or the data they did have was too limited to be of significant utility.⁵ The others had adequate inventories but often public access to the information was very difficult.

2. Methodological considerations

A standard GHG estimation methodology is not yet in place, but useable models exist. Convergence and standardization may come soon.⁶ For any GHG inventory process, assumptions will have to be made that will impact the final numbers. One basic assumption will involve drawing the boundary for GHG emissions included. For example, should the inventory include GHG emissions generated by inter-city or inter-regional commuters? Transparency is critical and whatever decisions are made, it will be important that future inventories remain consistent to the chosen methodology so that trends in GHG emissions will be comparable.

⁵ For example, Minneapolis did develop a baseline GHG inventory in 1993 for the year 1988, but a recent examination led the city to reconsider its accuracy. A new baseline analysis and current inventory are in the process of being developed. We deemed Berkeley's baseline inventory inadequate since it does not include the significant contributions of GHG emissions from the University of California-Berkeley and Lawrence Berkeley National Laboratory.

⁶ National signatories of the Kyoto Protocol itself are required to meet GHG inventory standards adopted by the Intergovernmental Panel on Climate Change (IPCC) <http://www.ipcc-nggip.iges.or.jp/>. The IPCC supplies Kyoto countries with a Good Practice Guidance document that provides the methodologies to estimate GHG emissions in four broad sectors: Energy (electricity, heating, transportation, etc.), Industrial Processes, Agriculture and Waste.

Many of the cities in our sample use a GHG inventory model called the Clean Air and Climate Protection (CACP) software (<http://www.cacpsoftware.com/>). Developed jointly by the State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials (STAPPA/ALAPCO) along with the International Council for Local Environmental Initiatives (ICLEI), CACP first became available in May 2003.

Many current and future inventory protocols rely on the ongoing work of the World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD).⁷ The WRI/WBCSD models target the business community but its spreadsheet tools can be modified and used by cities.

The California Climate Action Registry⁸ (the Registry), established by state statute, has developed a General Protocol and industry-specific protocols based on the WRI/WBCSD models. Registry participants use the General Reporting Protocol⁹ to report emissions, and then they use the Registry's Certification Protocol to certify that report.¹⁰ The Registry is working with other states to help them establish similar protocols for GHG inventories and offset certifications.

The Registry appears to be on track to become the default methodology for certifiable GHG emissions inventories at the state and local level.

Some cities using the CACP software have expressed concerns that they will not be able to meet the requirements of other emerging GHG verification protocols and GHG offset trading systems. Those fears seem to be unfounded. The latest version of the CACP software allows users access to advanced reporting features in order to generate the data necessary to integrate GHG inventory information into the California Climate Action Registry. The primary differences between the two approaches are that the California Registry requires third party certification of the GHG report while CACP doesn't, and the Registry distinguishes between emissions generated directly and those generated indirectly from the use of electricity, steam, or heat. ICLEI can help cities with an easy workaround to get the data in the correct format for use with the Registry.

The Chicago Climate Exchange¹¹ (CCX), the world's first and North America's only legally binding GHG emission reduction and trading system, requires participants to complete an independently certified baseline and ongoing inventory. Emissions are quantified using continuous emission monitors (when avail-

⁷ The WRI/WBCSD developed a GHG Corporate Accounting and Reporting Standard and a Project GHG Accounting and Reporting Standard. (<http://www.ghgprotocol.org/>) The program currently offers free downloads of a suite of peer-reviewed software tools using Microsoft Excel spreadsheets.

⁸ <http://www.climateregistry.org/> Registry participants include businesses, non-profit organizations, municipalities, state agencies, and other entities. San Francisco, one of our profiled cities, recently became the first U.S. city to certify their emissions inventory with the Registry.

⁹ General Reporting Protocol, Version 2.1, June 2006 - <http://www.climateregistry.org/docs/PROTOCOLS/GRP%20V2.1.pdf>

¹⁰ General Certification Protocol, Version 2, July 2003 - http://www.climateregistry.org/docs/PROTOCOLS/General_Certification_Protocol_July_03.pdf. The Registry's enabling legislation directs two state agencies, the Resources Agency and the Environmental Protection Agency, to provide technical guidance to the Registry. The Registry participant must submit its GHG reports via a web based software interface called CARROT (Climate Action Registry Reporting Online Tool).

¹¹ <http://www.chicagoclimatex.com/>

able), or through protocols developed by CCX and those developed by WRI/WBCSD.¹² At this time, cities participating in the CCX are including GHG emissions from municipal operations only not community-wide emissions.

Overall, methodological issues do not appear insurmountable. Variations among methodologies are diminishing. However, some estimation issues may be worthy of further investigation. One involves the way communities assess GHG emissions from activities that cross their borders. One good example is measuring the GHG emissions from gasoline and diesel used for transportation.

Estimating emissions from transportation can be especially difficult when there is a great deal of inter-city and suburb-to-city traffic. If citywide gasoline sales are used, the amount of emissions could be underestimated. If vehicle miles traveled (VMT) are used, emissions levels might be overstated. Both approaches require a variety of assumptions (e.g. allocating gas sales, allocating VMT, vehicle types, mpg estimates) in order to calculate emissions.

Regardless of the chosen method, the resulting GHG emissions numbers can only be considered approximate. Ultimately, the most important thing the city can do is to make the calculation and assumptions easily understood and easily evaluated by the public.

For the foreseeable future, precise estimates of community-wide GHG emissions from transportation will be difficult to calculate. The community's access to certain types of data (e.g. gas tax revenues or regional VMT statistics) will lead them to use a particular methodology. The CACP software handles both but the software manual steers users to utilize VMT estimates, and many cities are using that approach. In talking to the city of Portland, we came away believing that gasoline taxes (a surrogate for sales) can lead to as accurate if not greater accuracy as VMT. Once again, it is important to make the calculation fully transparent

3. Much of the emission variations among cities may be explained by the different carbon content of the fuels used to generate electricity.

Per capita emissions in the ten cities range from a low of 12.2 metric tons of carbon dioxide equivalent (CO₂e) emissions, to 20.3 tons.¹³ The per capita carbon dioxide equivalent emissions was 24.5 tons for the U.S. as a whole.¹⁴ The differences can largely be explained by the different fuel source for the city's electricity. In Austin, for example, over 50 percent of GHG emissions are generated from electricity consumption from its largely coal fired power supply. In largely hydroelectricity-dependent Seattle, on the other hand, electricity use accounts for less than 10 percent of the city's overall GHG emissions.

Transportation is the other significant source of GHG emissions, varying from 17-50 percent in the ten cities we looked at. But here too the wide variation may be tracked back to the varying level of GHG

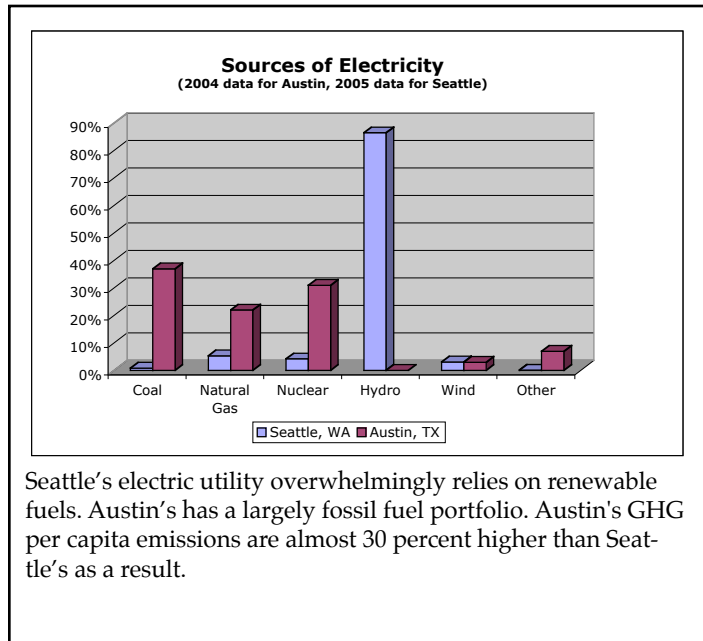
¹² Emissions are reported quarterly, and are subject to external verification and audit

¹³ Translate CO₂ emissions into carbon emissions by dividing by 3.67. Thus per capita carbon emissions range from 3.3 to 5.5 metric tons. Insufficient data exists to estimate emission levels in Berkeley, Minneapolis and Salt Lake City.

¹⁴ *Navigating the Numbers: Greenhouse Gas Emissions*. World Resources Institute, 2005.
http://www.wri.org/climate/pubs_description.cfm?pid=4093

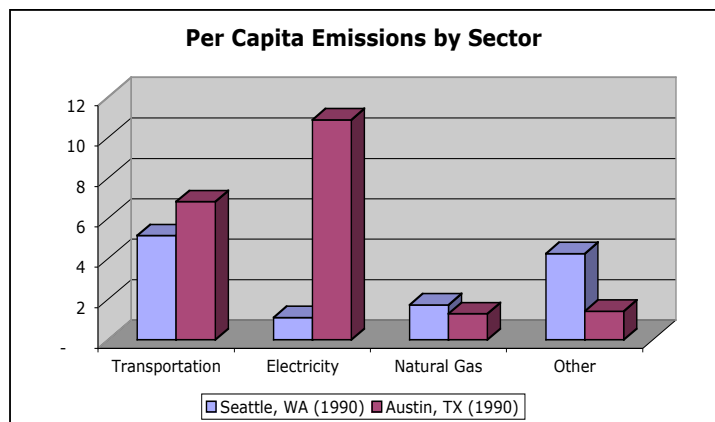
emissions in the electricity sector. Low carbon electricity tends to lead to a higher percentage of community emissions coming from transportation and vice versa.

The differences in the level of carbon in electricity fuels doesn't necessarily give a city an advantage in achieving GHG reduction goals because the goals are a reduction from a 1990 baseline. Low carbon content electricity cities may have a lower baseline, making their absolute GHG reduction goals lower. For Seattle, with a very low electricity fuel carbon content, less future emissions reductions can be wrung from the electric sector than in other cities and instead will have to come from sectors where community-wide GHG savings are more difficult (e.g. transportation). Austin, on the other hand, expects to meet more than 42 percent of its GHG reduction target by developing renewable energy for electricity, displacing coal.



We should note that Seattle's municipally owned utility has become the first to become climate neutral by purchasing carbon offsets to cover the remaining GHG emissions in the electricity sector (about 200,000 metric tons per year).

4. In all cities, community-wide emissions have risen since 1990, sometimes dramatically.

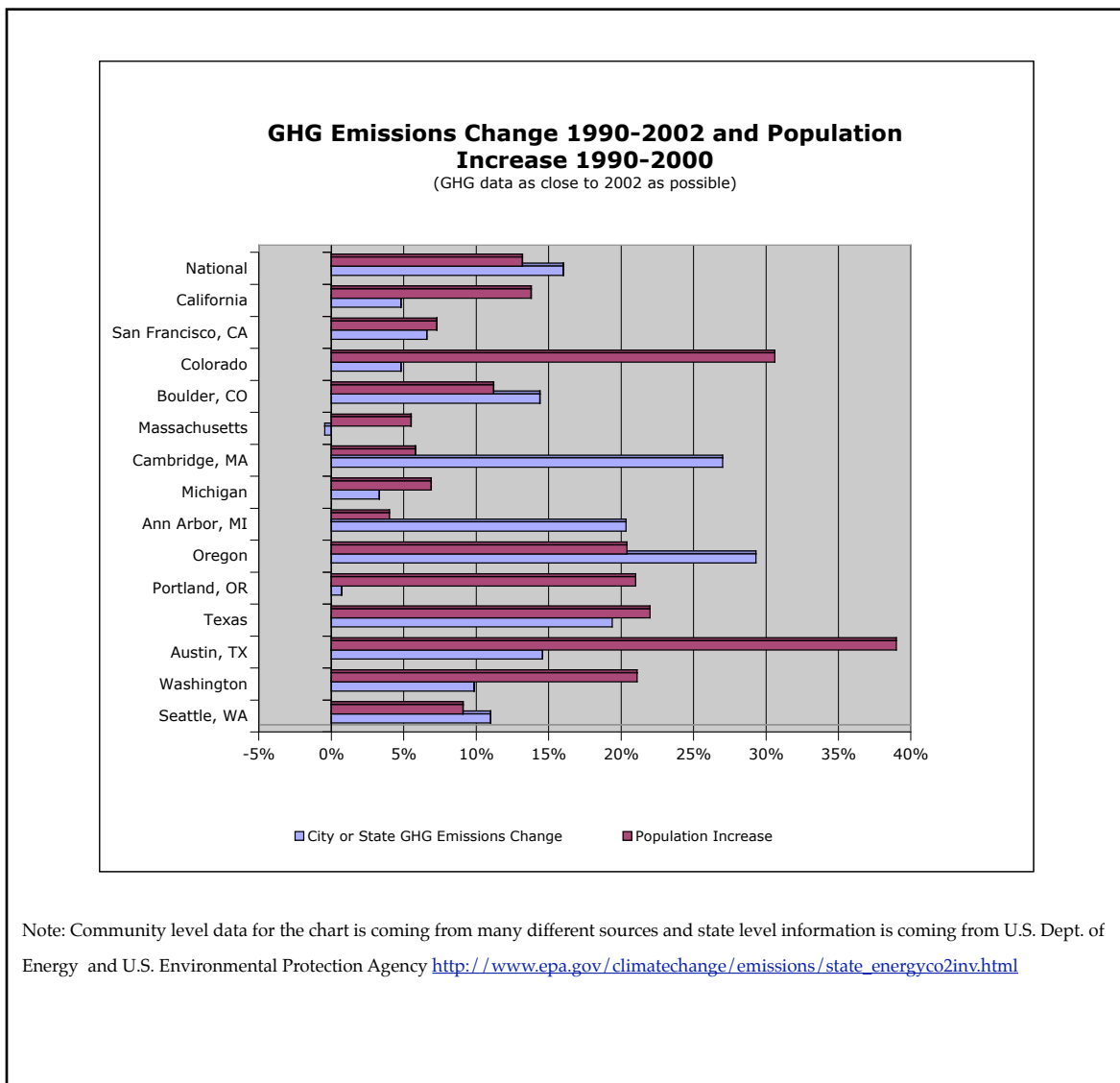


This is a key and troubling finding, demonstrating how challenging the effort to achieve even the modest Kyoto goals will be at the local level. Based on progress to date, it is unlikely that more than one or two of our ten cities and quite possibly none, will reduce their GHG emissions 7 percent below 1990 levels by 2012.

Overall emissions increases ranged from 6.5 percent to 27 percent from 1990 baseline measurements. An exception was Portland, Oregon, which reports its overall emissions a tiny 0.7 percent above the 1990 baseline.

The mid point in the range of increases in community-wide emissions among our profiled cities is 17 percent. This is almost identical to the 16 percent increase in national GHG emissions between 1990 and 2002.¹⁵

However, as the chart below reveals, there seems to be a surprising divergence between the trajectory and slope GHG emissions in Kyoto-cities versus those of GHG emissions of the state in which that city is located. We offer the chart with the following caveats: different methodologies used in state level GHG inventories from the U.S. Dept. of Energy can result in different results than state level inventories conducted by the states themselves. Further complicating the comparisons below are different methodologies used by the cities as compared to the state and federal inventories. We urge a more in-depth analysis of these differences.



¹⁵ Energy Information Administration, *International Energy Annual 2004*. <http://www.eia.doe.gov/>

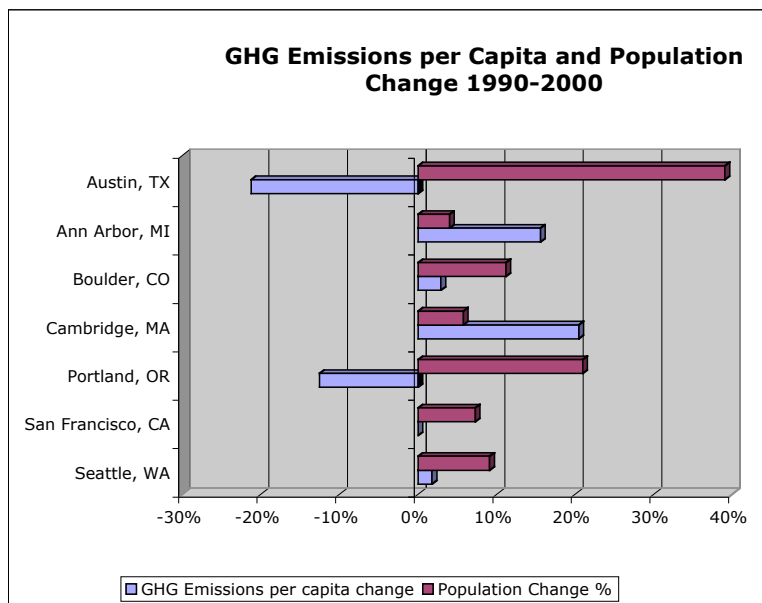
For example, DOE’s data shows Oregon’s emissions rising by about 35 percent between 1990 and 2000.¹⁶ The GHG inventory by the State of Oregon estimates an increase of about 18 percent. The dramatic difference arises because of different methods of allocating GHG emissions from the electric sector. DOE calculates emissions based on in-state electrical generation, the state of Oregon calculated GHG emissions based on the regional mix of electricity and argues that it “better reflects the carbon mix associated with the delivery of electricity to Oregon’s consumers.”¹⁷ DOE data for Oregon shows a dramatic 300 percent increase in GHG emissions in the electricity sector between 1990 and 2000. The State of Oregon’s data shows a much more modest 17 percent increase in electricity sector GHG emissions from 1990 to 2000.

Using the DOE data, in all but two cases, state-level GHG emissions growth was lower, often dramatically lower, than GHG emissions growth in the Kyoto city within that state.

We also find an interesting correlation between population growth and GHG emissions. In virtually all instances, jurisdictions whose population grew faster had slower emissions growth. California had almost twice the population growth of San Francisco but a smaller emission increase. Colorado’s population growth was almost triple that of Boulder but its GHG emission increase was only a third as rapid.

In Texas, on the other hand, population growth at the state level was only half that of Austin’s and Austin’s GHG emission growth rate was 25 percent slower than its state’s.

One theory to explain this correlation is that a greater population growth means that more people are living in much more energy efficient housing and having more efficient appliances. It is also possible that the methodology used by the Department of Energy and that used by the cities differs significantly. Again, more research is needed in this area



The only truly atypical case involves Portland, Oregon. Over the same time period, Oregon and Portland populations increased at virtually the same rate. Yet Oregon’s GHG emissions increased almost 30 percent (using DOE data) and 19 percent (using State of Oregon data) compared to the 0.7 percent increase in Portland. Among the cities we examined, Portland is the only one to virtually achieve a zero GHG emissions growth. Why?

It is possible that Portland’s urban growth boundaries may have helped in that its population increase raised its residential density significantly and

¹⁶ http://www.epa.gov/climatechange/emissions/state_energyco2inv.html

¹⁷ *Oregon Strategy for Greenhouse Gas Reductions*, State of Oregon, December 2004 (p. 150) <http://oregon.gov/ENERGY/GBLWRM/docs/GWReport-FInal.pdf>

led to an increase in the use of mass transit, reducing transportation fuel consumption beyond statewide levels. This is certainly an area needing further investigation.

5. Some cities are relying largely on higher levels of government to implement policies that will allow them to achieve their goals.

Almost all of the cities we surveyed were expecting, or hoping to realize a significant portion of their GHG reductions as a result of actions taken by higher levels of government. This can mean relying on a state-level renewable portfolio standard or an increase in federal fuel economy standards (or state standards perhaps, if California's action to limit vehicle CO₂ emissions is ruled acceptable by the Supreme Court). As the Cambridge climate change action report notes, "Changes in laws, standards, subsidies, and incentives at the federal and state levels can have huge impacts on local emissions; they can either undermine or enhance local actions."

- Ann Arbor expects that up to 75 percent of the emission reductions will come from the adoption of a state-wide 50 percent renewable electricity standard by 2020.
- Austin proposes to achieve over 30 percent of its overall emission reductions from improved vehicle efficiency and trip reductions in transportation. (1997 report)
- Cambridge proposes to achieve 60 percent of its overall emission reductions as a result of a state 20 percent renewable electricity standard and an increase in the federal fuel economy standards to 40 mpg. (2003 report)
- San Francisco proposes to meet 22 percent of its overall emission reductions from a five mpg increase in the federal corporate average fuel economy (CAFE) standards. (2004 report)

It is clear that action by higher levels of government will be needed and helpful to the local efforts. Thus, as part of their local climate action plans, cities should add a component that elaborates a strategy to work with other communities to influence state and national GHG and energy related policies. Foreseeing this necessity, the U.S. Mayors Climate Protection Agreement emphasizes that cities should be involved in advocacy for complementary state/federal policies. Through the newly created Mayors Council on Climate Protection under the auspices of ICLEI and the U.S. Conference of Mayors, the Kyoto Cities are forming a stronger policy arm to impact changes at the state and federal levels.

Relying too heavily on strategies out of the city's direct control, however, can have the additional drawback of stunting creative local solutions and can inhibit the city's investments in energy-related projects that have ancillary economic and environmental benefits.

6. Many of the reductions to date have come from pollution-shifting, or from a one-time-only capturing of landfill gas

Seattle has documented a 60 percent reduction in its municipal operation's GHG emissions from 1990 to 2000. Three actions achieved almost all the reductions. One was the sale by Seattle's municipal electric utility of its share of the Centralia Coal Plant and a switch to purchasing cleaner electricity. One might

call this strategy pollution-shifting since it did not reduce overall emissions but rather shifted the individual responsibility for those emissions (Seattle believes that the fossil fuel divestment and clean energy substitution sends a strong message to the marketplace that it must become cleaner.)

Another step taken by Seattle was to install a methane collection and flaring system in the city landfill.¹⁸ Several other cities have achieved reductions largely from tapping into landfills for methane gas. Ann Arbor reported that over 80 percent of its cumulative savings from its 1990 baseline (that is, reductions from projected growth) were a result of tapping into its garbage landfill and recovering methane. The Mayor of Salt Lake City claimed in the summer of 2006 that city operations have met the goals of the Kyoto Protocol by reducing GHG emissions by 22 percent from a 2001 baseline inventory. Over 70 percent of the GHG reductions from 2001 to 2005 resulted from one action – capturing methane from a city owned landfill.

A third action taken by Seattle, and several other cities, has been to purchase carbon offsets. Seattle proposes to meet about 30 percent of its overall emission reductions by purchasing carbon offsets (200,000 metric tons per year).¹⁹

Using a related but different strategy, Boulder proposes to achieve 58 percent of their overall emission reductions from purchases of renewable energy.

Buying carbon offsets is certainly a legitimate strategy if the offset project results in real reductions in greenhouse gas emissions. But since the carbon-offset projects can often take place outside the city's jurisdiction, the local government has disconnected responsibility from accountability. Tapping into the carbon offset market beyond a city's borders should be a lower priority GHG reduction option than initiatives that are local. There is also an increasing public awareness that some sources of carbon offsets and purchases of renewable energy credits (RECs) are not resulting in verifiable or real reductions in GHG emissions (a concept known as additionality).²⁰

7. Cities are not investing significant amounts of their own money to reduce GHG emissions

Many GHG reduction initiatives are funded from state and federal sources. Cities have often been reluctant to invest their own money. This may be understandable, given tight budgets, but cities should remember that energy-related investments repay themselves, often in relatively short time frames. Cities seem reluctant to invest even on initiatives with a relatively short payback. Probably the clearest evidence is in the LED traffic light substitution programs. Most if not all cities are substituting LEDs for conventional traffic signals, but few have achieved 100 percent substitution. Many will not achieve that level for several years. Some have delayed action for years, awaiting money from state or federal or utility grants, even though LED substitution has a very short payback period.

¹⁸ *Our Carbon Footprint*, Seattle Office of Sustainability, 2006. Flaring methane at landfills reduces CO2-equivalent emissions substantially compared to landfills that are not flaring.

¹⁹ Seattle has emphasized local GHG reduction strategies. To that end, a portion of their carbon offset purchases currently come from local GHG reduction projects.

²⁰ *A Consumers' Guide to Retail Carbon Offset Providers*, Clean Air-Cool Planet, 2006
<http://www.cleanair-coolplanet.org/>

Cities have the ability to borrow large sums at low interest over a long term, thereby achieving significant reductions in carbon emissions while repaying the debt from energy savings. They should more aggressively pursue these opportunities. A city should finance all efficiency improvements that repay themselves in less than 10 years, or in half the physical lifetime of the improvement. Some cities have suggested that maintaining a strong bond rating limits their ability to borrow additional money for energy-savings projects. This may be a valid, albeit surprising situation but one that is beyond the scope of this investigation.

Some cities are dedicating ongoing funds to specifically implement climate action plans. In November, 2006, Boulder, CO, voters passed a referendum imposing a "climate tax" on electricity consumption to finance GHG reduction projects. Boulder climate tax will raise \$860,265 in the first year, and up to \$1,342,000 each year thereafter for the period of April 1, 2007 to March 31, 2013.

Seattle's 2007-2008 proposed budget contains a \$37 million investment over two years to reduce GHG emissions by increasing transit ridership and decreasing driving. The city allocated \$3 million from its general fund revenues. The remaining \$34 million comes from a portion of a tax levy referendum passed by Seattle voters in November 2006. Seattle (like other cities) has other ongoing programs with expenditures (perhaps tens of millions of dollars) that can impact GHG emissions but are not delineated for climate change efforts.

A small first step for Kyoto-cities that we recommend is a policy of "climate neutral bonding" where any new bond-funded building projects can result in no net increases in GHG emissions within the community when completed.²¹ If a new construction project is projected to increase emissions, there must be GHG emissions offsets within the community. Another immediate step is for the city to develop a plan to ensure that city operations become climate neutral as soon as possible.

Good ideas for cities taking responsibility for the global consequences of their consumption habits are sprouting up across the country. In May 2006, the U.S. Conference of Mayor's issued an energy and environment best practices guide²² that contains dozens of interesting initiatives that cities around the country have engaged in. ICLEI along with other groups are building up resources in their Cool Mayors for Climate Protection web site at <http://www.coolmayors.org/>. ILSR's New Rules Project's web site on energy (<http://www.newrules.org/de/>) features a number of innovative policies at the local and state levels.

Conclusions

America's Kyoto cities are pioneers - building a path for others to follow. They are to be congratulated for making a visible, public commitment to address global warming. They have gathered data and created a benchmark (1990 emissions) against which to measure their progress. They have developed strategies and implemented programs. They have picked the low hanging fruit (e.g. tapping into landfills, LED traffic lights, purchasing renewables).

²¹ Climate Neutral Bonding: Building Global Warming Solutions at the State and Local Level, by John Bailey, Institute for Local Self-Reliance, February 2006. <http://www.newrules.org/de/climateneutralbonding.pdf>

²² http://www.usmayors.org/uscm/best_practices/EnergySummitBP06.pdf

These cities recognize the difficult challenge before them. Most of them are unlikely to achieve their quantitative GHG reduction goals. Many will miss their goals by a wide margin. Few appear to be doing better than their own states or other cities that have yet to adopt a Kyoto-like standard. All are learning the limits of their authority to effect significant changes in the energy consumption habits of their populations.

Yet the very number of cities that have formally agreed to participate in this effort speaks to a widespread desire to take responsibility for the planetary consequences of our consumption habits. The number of participating cities promises a wide degree of experimentation and innovation and a very steep learning curve. The advantage of many local initiatives is that if there is a failure, the damage done is very small and its lessons can quickly be disseminated. If there is a success, it can quickly be replicated and refined.

It is in that spirit of innovation and refinement that we offered this report.

Some outstanding issues to explore in more detail include:

- Urban Forestry and carbon sinks - how to account for GHG reductions from sequestration by trees.
- Transportation estimates - how to make comparisons easier and measurements more precise
- Methodologies - ensuring consistency. Do we need a national standard?
- Offsets - Should they be local? How to make them verifiable and additional.
- Comparisons - Have the Kyoto cities done better than other cities or states?
- Costs - What administrative and operational costs does a municipal climate change program entail? What staffing, budget, data gathering and organizational models exist?
- Why have Portland's GHG emissions remained essentially flat and how can other cities replicate and improve upon their efforts.
- Why are cities not investing more in short and medium term energy savings projects?
- How far can a city go to achieve Kyoto-like goals within its own jurisdiction and authority?
- Information exchange - What is the best way to develop a robust database and information exchange among Kyoto Cities?

A Suggested Hierarchy for Community-wide Carbon Reduction Efforts

1. Target direct emissions reductions by focusing on the GHG emissions locally by implementing all cost-effective energy efficiency measures (including efforts to reduce driving), on-site renewable energy and switching to cleaner fuels.
2. Target indirect emissions of GHG emissions in the electricity and transportation sectors that are beyond the direct control of the city.
3. Purchase carbon offsets and/or renewable energy credits that are from third-party verified projects that create GHG reductions that otherwise might not have occurred.

Links to the Cities and their Climate Change Web Sites

Ann Arbor, MI

City web site - <http://www.ci.ann-arbor.mi.us/>

Climate Change Information -

<http://www.a2gov.org/PublicServices/SystemsPlanning/Energy/ClimateProtection.html>

Austin, TX

City web site - <http://www.ci.austin.tx.us/>

Austin Energy - <http://www.austinenergy.com/>

Berkeley, CA

City web site - <http://www.ci.berkeley.ca.us/>

Energy and Sustainable Development Information - <http://www.ci.berkeley.ca.us/sustainable/>

Boulder, CO

City web site - <http://www.bouldercolorado.gov/>

Climate Information -

http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=1058&Itemid=396

Cambridge, MA

City web site - <http://www.cambridgema.gov/>

Climate Protection Information - <http://www.cambridgema.gov/cdd/et/env/climate/climate.html>

Minneapolis, MN

City web site - <http://www.ci.minneapolis.mn.us/>

Portland, OR

City web site - <http://www.portlandonline.com/>

Climate Protection Information - <http://www.portlandonline.com/osd/index.cfm?c=41896>

San Francisco, CA

City web site - <http://www.sfgov.org/>

Climate Protection Information - <http://www.sfenvironment.com/>

Salt Lake City, UT

City web site - <http://www.ci.slc.ut.us/>

Climate Protection Information - <http://www.slccgreen.com/>

Seattle, WA

City web site - <http://www.seattle.gov/>

Seattle's Climate Action Plan - <http://www.seattle.gov/climate/>

Climate Protection Information - <http://www.seattle.gov/mayor/climate/>