

Division Data Request DIV 8-1

Request:

Re: page 4, lines 6-8 of the direct testimony of witnesses Feibelman and Levin, please:

- a. Provide a detailed assessment of the portion of each component of the referenced “*annual synergy savings*” that will accrue to the benefit of the Company’s Rhode Island gas utility system.
- b. Provide a detailed assessment of the portion of each component of the referenced “*costs to achieve*” that will be borne by the Company’s Rhode Island gas customers.
- c. Please provide full documentation of:
 - i. All direct assignments of synergy savings to the Company’s Rhode Island gas utility system;
 - ii. The development of all allocations factors used to determine the synergy savings that are attributable to the Company’s Rhode Island gas utility system;
 - iii. All direct assignments of “costs to achieve” to the Company’s Rhode Island gas utility system;
 - iv. The development of all allocations factors used to determine the portion of National Grid’s overall “costs to achieve” that is attributable to the Company’s Rhode Island gas utility system;

Response:

- a. The Company has not developed an assessment of the portion of each component of the referenced “*annual synergy savings*” that will accrue to the benefit of the Company’s Rhode Island gas utility system. As described in the testimony of Mr. Laflamme (at pages 31-32 and 34-35 of 60) and at Attachment NG-MDL-4, page 3, benefits accruing to Rhode Island gas customers are based on the allocation of total savings (\$200 million) and not on a component-by-component allocation.

- b. The Company has not developed a detailed assessment of the portion of each component of the referenced “*costs to achieve*” that will be borne by the Company’s Rhode Island gas customers. As described in the testimony of Mr. Laflamme (at pages 33 and 35 of 60) and at Attachment NG-MDL-4, page 4), the costs to achieve associated with Rhode Island’s allocation of synergy savings is based on an allocation of total costs (\$400 million) and not on a component-by-component allocation.
- c.
- i. Please see the response to item 8-1(a) above. Mr. Laflamme’s allocation of savings did not include any direct assignments.
 - ii. Please see the response to item 8-1(a) above discussing the allocation factors used.
 - iii. Please see the response to item 8-1(b) above. Mr. Laflamme’s allocation of costs to achieve did not include any direct assignments.
 - iv. Please see the response to 8-1(b) above.

Division Data Request DIV 8-2

Request:

Re: page 6, lines 13-19 of the direct testimony of witnesses Feibelman and Levin, please:

- a. Provide a detailed breakdown of the integration team's final targeted synergy savings by business function;
- b. Provide documentation of synergy savings actually achieved to date by business function.

Response:

- a. The Integration Team's final targeted synergy savings by business function are shown on Schedule NG-AVF/RJL-1 with additional details provided in the response to DIV 8-3.
- b. Actual savings achieved through March 31, 2008 based on the latest information available are shown below.

	Actual Savings Achieved in \$000
US Regulation and Legal	\$1,867
External Affairs	150
Finance	1,411
Information Services	2,400
Executive	2,641
Customers and Markets	2,067
Automated Meter Reading (NY)	-
Shared Services (1)	4,151
Electric T&D	274
Gas Operations	2,113
Generation and Energy Supply	299
Total	\$17,373

(1) Includes Human Resources

Division Data Request DIV 8-3

Request:

Re: page 9, lines 4-18 of the direct testimony of witnesses Feibelman and Levin, please provide the data, assumptions, and electronic spreadsheet files used to compute the referenced “expected value” measures of synergy savings.

Response:

Attachment DIV 8-3 provides the information requested, including the nominal, “expected value-low end” and “expected value-high end” savings estimates by function and by cost-saving recommendation.

In developing “expected values” of savings, the Integration Team assigned one of the following confidence levels to each cost-saving recommendation:

- **Certainty:** 100 % probability to achieve;
- **High level of confidence:** 75% to 100% probability to achieve;
- **Medium level of confidence:** 50% to 75% probability to achieve; or
- **Low level of confidence:** 0% to 50% probability to achieve.

For each recommendation, the team developed a low-end estimate and a high-end estimate of savings, based on the probability ranges described above. For example, if the team identified a savings opportunity of \$1 million and assigned that opportunity at a “medium level of confidence,” then the range of savings was estimated at \$500,000 (\$1 million x 50%) to \$750,000 (\$1 million x 75%). The team considered the range of \$500,000 to \$750,000 as the estimated expected value of the recommendation.

	Annual Savings in \$000		
	Low	High	Nominal
US Regulation and Legal	11,447	11,971	11,973
External Affairs	2,030	2,142	2,142
Finance	12,379	13,633	14,006
Human Resources	595	595	595
Information Services	31,805	41,199	43,841
Executive	7,845	7,845	7,845
Shared Services Executive	814	814	814
Total Executive	8,659	8,659	8,659
Customers & Markets	17,796	30,166	40,524
AMR	3,502	11,801	20,100
Shared Services			
Supply Chain Services	7,826	9,346	10,427
Property Services	12,801	16,864	16,895
HR Services	5,351	5,902	6,069
Customer Related Services	3,173	4,354	4,919
Financial Services	8,013	10,909	12,334
Safety, Health, Environmental and Security	4,111	4,601	4,988
Total Shared Services	41,273	51,974	55,632
Electric T&D	12,217	17,028	20,024
Gas Operations	16,604	24,127	27,793
Generation and Energy Supply	1,530	1,647	1,671
Total	159,836	214,941	246,960
Less: Facilities and consolidation initiatives underway pre-merger by KeySpan in NY	(3,478)	(4,560)	(4,596)
Less: AMR initiative by KeySpan in NY	(3,502)	(11,801)	(20,100)
Net Total	152,857	198,580	222,264

US Regulation & Legal									
Initiative Title	Confidence Level	Nominal		Expected Value					
		Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
Elimination of KS Corporate Secretary non-labor costs	Certain - 100%	-	100	-	-	100	100	100	100
Elimination of KS Board of Directors	Certain - 100%	-	1,585	-	-	1,585	1,585	1,585	1,585
Elimination of KS Annual Meeting/Printing and Mailing of Annual Report	Certain - 100%	-	257	-	-	257	257	257	257
Consolidation of overlap staff	Certain - 100%	274	-	274	274	-	-	274	274
Reduction in outside professional services	Certain - 100%	-	1,850	-	-	1,850	1,850	1,850	1,850
Reduction in litigation expenses and other Legal staffing reductions	High - 75-100%	-	2,047	-	-	1,535	2,047	1,535	2,047
Consolidation of online research	Certain - 100%	-	200	-	-	200	200	200	200
Consolidation of library publications	Certain - 100%	-	25	-	-	25	25	25	25
Consolidation of overlap staff	Certain - 100%	4,593	-	4,593	4,593	-	-	4,593	4,593
Professional Development training initiative	Certain - 100%	-	30	-	-	30	30	30	30
Implement electronic invoicing KeySpan Legal Dept	Certain - 100%	-	100	-	-	100	100	100	100
Efficiencies due to implementation document management system	Certain - 100%	-	170	-	-	170	170	170	170
Reduction in outside professional services	Certain - 100%	-	200	-	-	200	200	200	200
Consolidation of overlap staff	Certain - 100%	2,469	-	2,469	2,469	-	-	2,469	2,469
Add analysts to handle increased workload	Certain - 100%	(1,572)	-	(1,572)	(1,572)	-	-	(1,572)	(1,572)
Transfer of Peter Flynn to Regulatory	Certain - 100%	(403)	-	(403)	(403)	-	-	(403)	(403)
Shared Services Plug: Contingent labor	High - 75-100%	-	13	-	-	10	13	10	13
Shared Services Plug: Office Supplies	Medium - 50-75%	-	1	-	-	1	1	1	1
Shared Services Plug: Contingent labor	Medium - 50-75%	-	4	-	-	2	3	2	3
Shared Services Plug: MRO	High - 75-100%	-	22	-	-	17	22	17	22
Shared Services Plug: MRO	Medium - 50-75%	-	4	-	-	2	3	2	3
Shared Services Plug: Office Supplies	High - 75-100%	-	4	-	-	3	4	3	4
Total		5,361	6,612	5,361	5,361	6,086	6,610	11,447	11,971
		Total	11,973						

External Affairs										
		Nominal				Expected Value				
Initiative Title	Confidence Level	Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)	
Reduction in outside Media Relations professional services	High - 75-100%	-	100	-	-	75	100	75	100	
Reduction in advertising costs	High - 75-100%	-	100	-	-	75	100	75	100	
Consolidation of overlap Media Relations staff	High - 75-100%	248	-	186	248	-	-	186	248	
Reduction in outside professional services (lobbyists)	Certain - 100%	-	300	-	-	300	300	300	300	
Consolidation of overlap Governmental Affairs staff	Certain - 100%	539	-	539	539	-	-	539	539	
Consolidate overlap corporate giving staff	Certain - 100%	855	-	855	855	-	-	855	855	
Total		1,642	500	1,580	1,642	450	500	2,030	2,142	
		Total	2,142							

Finance									
Initiative Title	Confidence Level	Nominal		Expected Value					
		Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
Consolidation of overlapping staff	High - 75-100%	205	-	154	205	-	-	154	205
Addition of CFO positions in the US	Certain - 100%	(252)	-	(252)	(252)	-	-	(252)	(252)
Consolidation of CFO positions	Certain - 100%	595	375	595	595	375	375	970	970
Reduce redundant Exec. Assitant position related to department 80000	Certain - 100%	180	-	180	180	-	-	180	180
Reduction of SVP Integration	Certain - 100%	403	30	403	403	30	30	433	433
Consolidate internal audit teams	High - 75-100%	1,154	-	866	1,154	-	-	866	1,154
Consolidation of Investor relations with the UK	Certain - 100%	591	212	591	591	212	212	803	803
Consolidation of Strategic Planning and Execution	Certain - 100%	1,474	825	1,474	1,474	825	825	2,299	2,299
Consolidation of Electric CFO organization	High - 75-100%	1,021	-	766	1,021	-	-	766	1,021
Consolidation of IS Finance	High - 75-100%	322	-	242	322	-	-	242	322
Procurement savings - PO	High - 75-100%	-	70	-	-	53	70	53	70
Procurement savings - PO	Medium - 50-75%	-	20	-	-	10	15	10	15
Consolidating insurance purchasing	Certain - 100%	158	2,669	158	158	2,669	2,669	2,827	2,827
Consolidate investment management	Medium - 50-75%	517	-	259	388	-	-	259	388
Implementation of treasury workstation	High - 75-100%	-	40	-	-	30	40	30	40
Elimination of Treasurer & CRO position and management	Certain - 100%	753	-	753	753	-	-	753	753
Consolidation of credit risk management	Certain - 100%	45	-	45	45	-	-	45	45
Consolidation of Operational Business Risk Management	High - 75-100%	225	-	169	225	-	-	169	225
Eliminate transfer agent fees	Certain - 100%	-	400	-	-	400	400	400	400
Bank account consolidation	High - 75-100%	-	100	-	-	75	100	75	100
Consolidate cash management personnel	Medium - 50-75%	289	-	145	217	-	-	145	217
Elimination of NYSE listing fees	High - 75-100%	-	170	-	-	128	170	128	170
Consolidate capital markets staff	Medium - 50-75%	465	200	233	349	100	150	333	499
Consolidate stock plans staff	Certain - 100%	306	-	306	306	-	-	306	306
Consolidation of Tax department management	Certain - 100%	223	-	223	223	-	-	223	223
Consolidation of Income Tax department	High - 75-100%	221	-	166	221	-	-	166	221
Total		8,895	5,111	7,473	8,577	4,906	5,056	12,379	13,633
		Total	14,006						

Human Resources									
		Nominal		Expected Value					
Initiative Title	Confidence Level	Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
Consolidate overlap management	Certain - 100%	595	-	595	595	-	-	595	595
Total		595	-	595	595	-	-	595	595
		Total	595						

Information Services										
Initiative Title	Confidence Level	Nominal		Expected Value						
		Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)	
Consolidation of Corporate Application staff - management	High - 75-100%	511	-	383	511	-	-	383	511	
Consolidation of Customer Applications staff - management	Certain - 100%	593	-	593	593	-	-	593	593	
Consolidation of Customer Applications - Vacancies	Certain - 100%	286	-	286	286	-	-	286	286	
Consolidation of Customer Applications staff - staff (high confidence)	High - 75-100%	1,805	-	1,354	1,805	-	-	1,354	1,805	
Consolidation of Application Services staff - management	Certain - 100%	343	-	343	343	-	-	343	343	
Consolidation of Application Services staff - staff (high confidence)	High - 75-100%	1,271	-	953	1,271	-	-	953	1,271	
Consolidation of Application Services staff - Vacancies	Certain - 100%	191	-	191	191	-	-	191	191	
Reduction in overlapping management and staff positions	High - 75-100%	425	-	319	425	-	-	319	425	
Consolidation of Corporate Applications staff - vacancies	Certain - 100%	382	-	382	382	-	-	382	382	
Consolidation of Corporate Applications staff - staff (high confidence)	High - 75-100%	1,192	-	894	1,192	-	-	894	1,192	
Consolidation of Trans/Gen Applications staff - management	High - 75-100%	180	-	135	180	-	-	135	180	
Consolidation of Trans/Gen Applications staff - staff (high confidence)	High - 75-100%	655	-	491	655	-	-	491	655	
Consolidation of Operations Applications staff - management	Certain - 100%	374	-	374	374	-	-	374	374	
Consolidation of Operations Applications staff - staff (high confidence)	High - 75-100%	1,699	-	1,274	1,699	-	-	1,274	1,699	
Consolidation of Infrastructure management	Certain - 100%	252	-	252	252	-	-	252	252	
Consolidation of Data Center - Staff	High - 75-100%	2,205	-	1,654	2,205	-	-	1,654	2,205	
Consolidation of Data Center - Staff (Medium)	Medium - 50-75%	470	-	235	353	-	-	235	353	
Consolidation of Energy Management - Staff	High - 75-100%	316	-	237	316	-	-	237	316	
Consolidation of Telecom Services - Management	Certain - 100%	233	-	233	233	-	-	233	233	
Consolidation of Telecom Services - Staff	Medium - 50-75%	534	-	267	401	-	-	267	401	
Consolidation of Network Engineering - Management	Certain - 100%	158	-	158	158	-	-	158	158	

Consolidation of Network Engineering - Vacancy	Certain - 100%	95	-	95	95	-	-	95	95
Consolidation of Network Engineering - Staff	High - 75-100%	116	-	87	116	-	-	87	116
Consolidation of Network Engineering - Staff (Medium)	Medium - 50-75%	389	-	195	292	-	-	195	292
Reduction in overlapping management and staff positions	High - 75-100%	1,026	-	770	1,026	-	-	770	1,026
Consolidation of Distributed Computing - Management	High - 75-100%	669	-	502	669	-	-	502	669
Consolidation of Distributed Computing - Management (Medium)	Medium - 50-75%	352	-	176	264	-	-	176	264
Consolidation of Distributed Computing - Vacancies	Certain - 100%	903	-	903	903	-	-	903	903
Consolidation of Distributed Computing - Staff	High - 75-100%	868	-	651	868	-	-	651	868
Consolidation of Distributed Computing - Staff (Medium)	Medium - 50-75%	1,161	-	581	871	-	-	581	871
Consolidation of Data Center - Management	Certain - 100%	437	-	437	437	-	-	437	437
Consolidation of Data Center - Management (Medium)	Medium - 50-75%	726	-	363	545	-	-	363	545
Consolidation of Data Center - Vacancies	Certain - 100%	450	-	450	450	-	-	450	450
Consolidation of Strategy & Business management staff - management	High - 75-100%	849	-	637	849	-	-	637	849
Consolidation of Strategy & Business management staff - Vacancies	Certain - 100%	1,567	-	1,567	1,567	-	-	1,567	1,567
Consolidation of Strategy & Business management staff - Staff (high confidence)	High - 75-100%	86	-	65	86	-	-	65	86
Consolidation of Strategy & Business management staff - Staff (Med. confidence)	Medium - 50-75%	1,013	-	507	760	-	-	507	760
Reduction in non-labor costs from consolidation of applications/infrastructure (high)	High - 75-100%	-	6,399	-	-	4,799	6,399	4,799	6,399
Reduction in non-labor costs from consolidation of infrastructure/applications (medium)	Medium - 50-75%	-	4,267	-	-	2,134	3,200	2,134	3,200
Reduction in contractors from the consolidation of applications/infrastructure (High)	High - 75-100%	-	3,864	-	-	2,898	3,864	2,898	3,864
Reduction in contractors from the consolidation of applications/infrastructure (med)	Medium - 50-75%	-	1,656	-	-	828	1,242	828	1,242
Organizational Integration	High - 75-100%	2,452	-	1,839	2,452	-	-	1,839	2,452
Consolidate HRIS (HR_ES_05)	High - 75-100%	421	-	316	421	-	-	316	421
Total		27,655	16,186	21,146	26,494	10,659	14,705	31,805	41,199
		Total	43,841						

Executive									
		Nominal		Expected Value					
Initiative Title	Confidence Level	Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
Organizational consolidation	Certain - 100%	6,890	955	6,890	6,890	955	955	7,845	7,845
Total		6,890	955	6,890	6,890	955	955	7,845	7,845
		Total	7,845						

Shared Services Executive										
		Nominal	Expected Value							
Initiative Title	Confidence Level	Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)	
Consolidate overlap management	Certain - 100%	595	-	595	595	-	-	595	595	
Organizational Consolidation	Certain - 100%	219	-	219	219	-	-	219	219	
Total		814	-	814	814	-	-	814	814	
		Total	814							

Customers & Markets									
Initiative Title	Confidence Level	Nominal		Expected Value					
		Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
Reduction in outside professional services	High - 75-100%	-	135	-	-	101	135	101	135
Reduction in advertising costs	High - 75-100%	-	200	-	-	150	200	150	200
Re-bidding of printing contract	High - 75-100%	-	50	-	-	38	50	38	50
Consolidation of overlap staff	High - 75-100%	1,707	-	1,280	1,707	-	-	1,280	1,707
Reduction of common membership fees	High - 75-100%	-	183	-	-	137	183	137	183
Reduction in costs associated with annual meeting and report	Certain - 100%	-	500	-	-	500	500	500	500
Implement more efficient and effective operating model for large accounts	High - 75-100%	602	259	452	602	194	259	646	861
Implement more efficient model for managing New Construction Orders	Medium - 50-75%	1,294	525	647	971	263	394	910	1,364
Centralize back office and support activities for non-managed accounts	Medium - 50-75%	388	-	194	291	-	-	194	291
Create a corporate ED approach	High - 75-100%	109	-	82	109	-	-	82	109
Implement consistent allocation of Account Managers' time	High - 75-100%	-	500	-	-	375	500	375	500
Back Office Billing savings associated with CIS System Consolidation (a)	Medium - 50-75%	675	-	338	506	-	-	338	506
Contact Center Consolidation (a- NG)	Medium - 50-75%	3,991	837	1,996	2,993	419	628	2,414	3,621
Contact Center Consolidation (b - KS)	Low - 0-50%	2,076	223	-	1,038	-	112	-	1,150
Move Calls to Competitive Cost Structure (a- NG)	Medium - 50-75%	4,755	(2,480)	2,378	3,566	(1,240)	(1,860)	1,138	1,706
Move Calls to Competitive Cost Structure (b - KS)	Low - 0-50%	11,159	(5,800)	-	5,580	-	(2,900)	-	2,680
Virtualization (a- NG)	Medium - 50-75%	1,500	40	750	1,125	20	30	770	1,155
Virtualization (b - KS)	Low - 0-50%	1,500	130	-	750	-	65	-	815
Increased Self-Service (a- NG)	High - 75-100%	525	1,010	394	525	758	1,010	1,151	1,535
Increased Self-Service (b - KS)	Low - 0-50%	1,050	1,010	-	525	-	505	-	1,030
Back Office Consolidation (a- NG)	Medium - 50-75%	2,475	70	1,238	1,856	35	53	1,273	1,909
Back Office Consolidation (b - KS)	Low - 0-50%	750	20	-	375	-	10	-	385
Reduce Traffic to Customer Offices through additional Kiosks	Low - 0-50%	225	50	-	113	-	25	-	138
CSR Training/Support	High - 75-100%	1,148	20	861	1,148	15	20	876	1,168
Adopt Pos ID systemwide (a)	Medium - 50-75%	(225)	-	(113)	(169)	-	-	(113)	(169)
Recall past obligations from vendor (a)	High - 75-100%	(75)	-	(56)	(75)	-	-	(56)	(75)
Adopt system wide outbound calling strategy (a)	Medium - 50-75%	950	-	475	713	-	-	475	713
Customer Satisfaction Program	Medium - 50-75%	185	100	93	139	50	75	143	214

Regulatory Relations on Customer Issues	High - 75-100%	501	-	376	501	-	-	376	501
Improved efficiency within existing KeySpan growth model	Certain - 100%	1,074	-	1,074	1,074	-	-	1,074	1,074
Increase self-service for plumbers, contractors, and prospects through web and IVR	Medium - 50-75%	913	-	457	685	-	-	457	685
Marketing non-labor savings	Certain - 100%	-	164	-	-	164	164	164	164
Renegotiation of sponsorship contracts	Certain - 100%	-	1,700	-	-	1,700	1,700	1,700	1,700
Shared Services: Contingent labor	High - 75-100%	-	96	-	-	72	96	72	96
Shared Services: Contingent labor	Medium - 50-75%	-	29	-	-	15	22	15	22
Shared Services: Engineering services	Medium - 50-75%	-	1	-	-	1	1	1	1
Shared Services: MRO	High - 75-100%	-	14	-	-	11	14	11	14
Shared Services: MRO	Medium - 50-75%	-	2	-	-	1	2	1	2
Shared Services: Office supplies	High - 75-100%	-	33	-	-	25	33	25	33
Shared Services: Office supplies	Medium - 50-75%	-	5	-	-	3	4	3	4
Shared Services: Advertising & Marketing	High - 75-100%	-	1,029	-	-	772	1,029	772	1,029
Shared Services: Advertising & Marketing	Medium - 50-75%	-	617	-	-	309	463	309	463
Total		39,252	1,272	12,912	26,647	4,884	3,519	17,796	30,166
		Total	40,524						

AMR									
		Nominal		Expected Value					
Initiative Title	Confidence Level	Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
AMR (LI ELEC)	Low - 0-50%	8,175	794	-	4,088	-	397	-	4,485
AMR (NY)	Medium - 50-75%	6,759	244	3,380	5,069	122	183	3,502	5,252
AMR (LI GAS)	Low - 0-50%	3,788	340	-	1,894	-	170	-	2,064
Total		18,722	1,378	3,380	11,051	122	750	3,502	11,801
		Total	20,100						

Supply Chain Services									
Initiative Title	Confidence Level	Nominal		Expected Value					
		Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
system	Certain - 100%	116	25	116	116	25	25	141	141
Use a single T&E card and system	Certain - 100%	41	-	41	41	-	-	41	41
Optimize use of e-commerce technology	Low - 0-50%	248	-	-	124	-	-	-	124
Re-engineer of AP System and Process Standardization	High - 75-100%	248	-	186	248	-	-	186	248
Increase Use of Contract Work staff.	High - 75-100%	413	(200)	310	413	(150)	(200)	160	213
Extend use of online ordering of office supplies	Certain - 100%	-	20	-	-	20	20	20	20
Consolidate Bank Accounts and Business Units into single paying company	Medium - 50-75%	83	-	42	62	-	-	42	62
Reduce the size of the fleet	High - 75-100%	-	600	-	-	450	600	450	600
Organization consolidation	Certain - 100%	3,438	-	3,438	3,438	-	-	3,438	3,438
Joint vehicle procurement	Low - 0-50%	-	1,217	-	-	-	609	-	609
Joint commodity procurement	Medium - 50-75%	-	180	-	-	90	135	90	135
Vehicle auction process	High - 75-100%	-	300	-	-	225	300	225	300
Standardize company supplied vehicle program	Low - 0-50%	-	530	-	-	-	265	-	265
Functional Consolidation	High - 75-100%	109	-	82	109	-	-	82	109
Expand Inv recovery to Key Span	Low - 0-50%	(36)	-	-	(18)	-	-	-	(18)
Organization consolidation	Certain - 100%	1,693	-	1,693	1,693	-	-	1,693	1,693
Technology Transition	Certain - 100%	-	926	-	-	926	926	926	926
NE Warehouse Consolidation	High - 75-100%	286	-	215	286	-	-	215	286
Functional Consolidation	Certain - 100%	22	24	22	22	24	24	46	46
Total		6,661	3,622	6,144	6,534	1,610	2,704	7,754	9,238
			10,283						
Already underway									
NYC/LI Warehouse Consolidation	Medium - 50-75%	144	-	72	108	-	-	72	108
			144						
Total including underway		6,805	3,622	6,216	6,642	1,610	2,704	7,826	9,346
		Total	10,427						

Facility Consolidation - Long Island	High - 75-100%	306	3,555	230	306	2,666	3,555	2,896	3,861
Facility Consolidation - NYC (Coney Island)	High - 75-100%	-	200	-	-	150	200	150	200
Facility Consolidation - Northeast Mass	High - 75-100%	-	(50)	-	-	(38)	(50)	(38)	(50)
Sale of Non-Regulated, Non-Operating Surplus Land	Certain - 100%	-	48	-	-	48	48	48	48
Lease of regulated non operating surplus vacant land	Certain - 100%	-	218	-	-	218	218	218	218
Exit Metropolitan Lease	High - 75-100%	-	175	-	-	131	175	131	175
		306	4,146	230	306	3,176	4,146	3,406	4,452
			4,452						
Total including underway		5,315	11,580	4,053	5,315	8,748	11,549	12,801	16,864
		Total	16,895						

HR Services									
Initiative Title	Confidence Level	Nominal		Expected Value					
		Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
Consolidate benefits groups (A)	Certain - 100%	642	-	642	642	-	-	642	642
Consolidate benefits groups (B)	Medium - 50-75%	74	-	37	56	-	-	37	56
Consolidate benefits groups (C)	Low - 0-50%	87	-	-	44	-	-	-	44
Consolidate consultants and contractors	Certain - 100%	-	1,400	-	-	1,400	1,400	1,400	1,400
Consolidate compensation groups	Certain - 100%	481	-	481	481	-	-	481	481
Mandatory direct deposit and electronic payroll	Certain - 100%	165	100	165	165	100	100	265	265
Implement exception based time reporting	Certain - 100%	165	-	165	165	-	-	165	165
Implement employee self service	High - 75-100%	62	-	47	62	-	-	47	62
Implement management self service	Medium - 50-75%	83	-	42	62	-	-	42	62
Consolidate payroll groups (A)	Certain - 100%	345	-	345	345	-	-	345	345
Consolidate payroll groups (B)	High - 75-100%	165	-	124	165	-	-	124	165
Consolidate employee service centers (A)	Certain - 100%	656	-	656	656	-	-	656	656
Shared Services: Contingent labor	High - 75-100%	-	14	-	-	11	14	11	14
Shared Services: Contingent labor	Medium - 50-75%	-	4	-	-	2	3	2	3
Shared Services: Engineering services	Medium - 50-75%	-	1	-	-	1	1	1	1
Organizational Integration	High - 75-100%	339	-	254	339	-	-	254	339
Standardize Training Offerings	High - 75-100%	340	(75)	255	340	(56)	(75)	199	265
Optimize Training Offerings	Medium - 50-75%	334	-	167	251	-	-	167	251
Optimize Training Delivery	High - 75-100%	225	-	169	225	-	-	169	225
Optimize Trainer Cost Model	High - 75-100%	687	(225)	515	687	(169)	(225)	347	462
Total		4,850	1,219	4,063	4,684	1,288	1,218	5,351	5,902
		Total	6,069						

Customer Related Services									
Initiative Title	Confidence Level	Nominal		Expected Value					
		Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
CIS System Consolidation	Medium - 50-75%	612	-	306	459	-	-	306	459
Convert KeySpan bi-monthly billed accounts to monthly billing	High - 75-100%	-	900	-	-	675	900	675	900
Increase customer utilization of Electronic Bill Presentment and Payment (EBPP) and shift customers to lower-cost payment options	High - 75-100%	-	700	-	-	525	700	525	700
Consolidate Bill print and mail function for the combined company	High - 75-100%	1,131	(925)	848	1,131	(694)	(925)	155	206
Eliminate FTEs associated with CSS conversion once both conversions are complete	High - 75-100%	210	-	158	210	-	-	158	210
Staff Adjustment Since Baseline	Certain - 100%	(327)	-	(327)	(327)	-	-	(327)	(327)
Adopt Pos ID systemwide	Medium - 50-75%	-	(300)	-	-	(150)	(225)	(150)	(225)
Adopt system wide policy of collecting 100% on field visits	Low - 0-50%	-	(900)	-	-	-	(450)	-	(450)
Improve replevin process	Medium - 50-75%	-	900	-	-	450	675	450	675
Migrate to fewer and more effective vendors	Medium - 50-75%	407	(900)	204	305	(450)	(675)	(247)	(370)
Adopt 3-tier final bill collections model system wide	High - 75-100%	-	(500)	-	-	(375)	(500)	(375)	(500)
Increased HEAP Payments	Medium - 50-75%	-	(130)	-	-	(65)	(98)	(65)	(98)
Recall past obligations from vendor	High - 75-100%	-	800	-	-	600	800	600	800
Adopt risk-based segmentation strategy system wide	Low - 0-50%	232	-	-	116	-	-	-	116
Adopt system wide outbound calling strategy	Medium - 50-75%	-	(1,000)	-	-	(500)	(750)	(500)	(750)
Equipment replacement and licensing fee avoidance contingent on outsourcing PP	Medium - 50-75%	-	400	-	-	200	300	200	300
Centralize Payment Processing	Low - 0-50%	297	-	-	149	-	-	-	149
Transfer services from Citibank to Remitco	Certain - 100%	-	250	-	-	250	250	250	250
Negotiate walk-in payment agent contract - Western Union	Certain - 100%	-	60	-	-	60	60	60	60
Aggressive consolidation of clerks dependent on resolving union and geographic constraints	Low - 0-50%	641	-	-	321	-	-	-	321
Mellon Financial Services check conversion to electronic debits	Medium - 50-75%	-	620	-	-	310	465	310	465
Convert Manual Billing of KeySpan's Property Damages.	High - 75-100%	150	-	113	150	-	-	113	150
Consolidate NY/LI Payment Processing functions	Medium - 50-75%	542	-	271	407	-	-	271	407
Negotiate Lockbox Contract with Mellon Financial	Certain - 100%	-	480	-	-	480	480	480	480
Consolidate Westborough/Waltham/Syracuse Payment Processing Operations	Medium - 50-75%	569	-	285	427	-	-	285	427
Outsource KeySpan's in-house Payment Processing Operation	Medium - 50-75%	525	(525)	263	394	(263)	(394)	-	-
Total		4,989	(70)	2,119	3,740	1,054	614	3,173	4,354
			4,919						

Financial Services									
Initiative Title	Confidence Level	Nominal		Expected Value					
		Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
Additional reductions	Medium - 50-75%	404	-	202	303	-	-	202	303
Consolidate financial management & reporting functions	Medium - 50-75%	1,493	-	747	1,120	-	-	747	1,120
Consolidate accounting services functions	Medium - 50-75%	715	-	358	536	-	-	358	536
Process improvements	Medium - 50-75%	112	-	56	84	-	-	56	84
Consolidate professional service firms and vendors	High - 75-100%	-	3,500	-	-	2,625	3,500	2,625	3,500
Consolidate management and staff	Medium - 50-75%	195	9	98	146	5	7	102	153
Consolidation of management contingent on the incorporation of NEG personnel	Medium - 50-75%	55	-	28	41	-	-	28	41
Aggressive consolidation assuming manual processes are eliminated	Low - 0-50%	23	-	-	12	-	-	-	12
Consolidation of Management Reporting and Planning	High - 75-100%	2,382	-	1,787	2,382	-	-	1,787	2,382
Additional reductions of Management Reporting & Planning	Medium - 50-75%	779	-	390	584	-	-	390	584
Ongoing KSE system automation	Certain - 100%	75	-	75	75	-	-	75	75
Centralize Revenue Reporting contingent on one Customer System	Medium - 50-75%	1,109	-	555	832	-	-	555	832
Consolidate SOX teams	Certain - 100%	601	97	601	601	97	97	698	698
Aggressive consolidation of SOX assuming a number of assumptions	Medium - 50-75%	627	-	314	470	-	-	314	470
Consolidation of Non-income Tax department	Medium - 50-75%	158	-	79	119	-	-	79	119
Total		8,728	3,606	5,286	7,305	2,727	3,604	8,013	10,909
		Total	12,334						

Safety, Health, Environment, & Security									
Initiative Title	Confidence Level	Nominal		Expected Value					
		Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
Procurement-led category sourcing - unarmed guards	High - 75-100%	-	240	-	-	180	240	180	240
Procurement-led category sourcing - unarmed guards	Medium - 50-75%	-	80	-	-	40	60	40	60
Organization consolidation	Certain - 100%	1,369	-	1,369	1,369	-	-	1,369	1,369
Integrated Disability Management	High - 75-100%	-	100	-	-	75	100	75	100
Consolidate Medical Services - NE	Certain - 100%	-	160	-	-	160	160	160	160
Consolidate Contracted Medical Services Vendors	High - 75-100%	-	70	-	-	53	70	53	70
Analytical Services Process: Optimize insource/outsource mix	Medium - 50-75%	146	100	73	110	50	75	123	185
Optimize Waste Management, Environmental Outreach and Spill Response Process:	Medium - 50-75%	64	40	32	48	20	30	52	78
Environmental Policy and Management Process: Organizational Integration	Certain - 100%	595	-	595	595	-	-	595	595
Environmental Licensing and Compliance Process: Organizational Integration	Certain - 100%	364	-	364	364	-	-	364	364
Organization consolidation	Certain - 100%	474	-	474	474	-	-	474	474
Functional Consolidation	Certain - 100%	585	-	585	585	-	-	585	585
Contract Guards Staffing Reduction	Low - 0-50%	-	560	-	-	-	280	-	280
Security Reporting Function	Certain - 100%	-	41	-	-	41	41	41	41
Total		3,597	1,391	3,492	3,545	619	1,056	4,111	4,601
		Total	4,988						

Electric T&D										
Initiative Title	Confidence Level	Nominal		Expected Value						
		Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)	
Single point of accountability Project Management structure; Functional Consolidation with KeySpan	Certain - 100%	-	-	-	-	-	-	-	-	-
Combine NG and KS volume for "Dig Safe"	Certain - 100%	-	65	-	-	65	65	65	65	65
Use common Transmission Outage Application (TOA) Program	Medium - 50-75%	-	200	-	-	100	150	100	150	150
Control Consolidation	Medium - 50-75%	3,376	-	1,688	2,532	-	-	1,688	2,532	2,532
Technology (ARCOS and AVLS)	High - 75-100%	-	150	-	-	113	150	113	150	150
Adopt best practices relative to Work Methods/ Construction Unit/Macro estimating units	Certain - 100%	-	400	-	-	400	400	400	400	400
Adopt best practices relative to permanent connections. (ie., utilize electricians to make permanent taps; designers/planners for meter sets.)	High - 75-100%	-	1,000	-	-	750	1,000	750	1,000	1,000
Adopt GIS/design system at KeySpan	Certain - 100%	-	200	-	-	200	200	200	200	200
Consolidate engineering standards	Certain - 100%	187	-	187	187	-	-	187	187	187
Evaluate single point of contact for requests for service	Certain - 100%	-	200	-	-	200	200	200	200	200
Issue jobs not requiring design directly to field	Medium - 50-75%	-	400	-	-	200	300	200	300	300
Standardize GIS Platform	High - 75-100%	-	100	-	-	75	100	75	100	100
Consider installing GPS at KS	High - 75-100%	-	250	-	-	188	250	188	250	250
Standardize the field worker to support worker ratio across the company	Medium - 50-75%	3,538	-	1,769	2,654	-	-	1,769	2,654	2,654
Standardize the field worker to support worker ratio across the company	Medium - 50-75%	1,015	-	508	761	-	-	508	761	761
Standardize acceptance testing of key electric hardware	Medium - 50-75%	263	29	132	197	15	22	146	219	219
Technical training on inclement days	High - 75-100%	-	570	-	-	428	570	428	570	570
Explore usage of cost data reports	High - 75-100%	-	119	-	-	89	119	89	119	119
Explore installing a productivity measurement system	High - 75-100%	-	119	-	-	89	119	89	119	119
Evaluate in-sourcing from transformer shop/general shops	High - 75-100%	-	124	-	-	93	124	93	124	124
Evaluate organizational structure opportunities	Medium - 50-75%	420	-	210	315	-	-	210	315	315
Investigate AIMMS (Maximo) as the common Relay Asset Management software	Low - 0-50%	504	-	-	252	-	-	-	252	252

Relay test cycles	High - 75-100%	-	35	-	-	26	35	26	35
(blank)	High - 75-100%	-	39	-	-	29	39	29	39
Evaluate the consolidation of functions	Certain - 100%	158	-	158	158	-	-	158	158
Automate Equipment History	Certain - 100%	-	100	-	-	100	100	100	100
Organizational Structure	Certain - 100%	75	-	75	75	-	-	75	75
Shared services procurement savings	High - 75-100%	-	3,814	-	-	2,861	3,814	2,861	3,814
Shared services procurement savings	Medium - 50-75%	-	1,252	-	-	626	939	626	939
Standardize organizational approach	High - 75-100%	272	-	204	272	-	-	204	272
Develop uniform standards and material specs	High - 75-100%	-	15	-	-	11	15	11	15
Investigate inventory sharing with LIPA	High - 75-100%	-	50	-	-	38	50	38	50
Provide cross support and leverage specialized expertise	Medium - 50-75%	-	15	-	-	8	11	8	11
Consolidate software licenses	Certain - 100%	-	100	-	-	100	100	100	100
Establish Transmission Lump sum danger tree removals at NGRID	High - 75-100%	-	250	-	-	188	250	188	250
Consolidate KS ans NG bareground treatments	Certain - 100%	-	10	-	-	10	10	10	10
Exclude service drop trimming on cycle projects and customer requests	High - 75-100%	-	300	-	-	225	300	225	300
Exclude service drop trimming on cycle projects and customer requests	Low - 0-50%	-	100	-	-	-	50	-	50
Change NE NGRID customer contact from permission to notification only	Medium - 50-75%	-	50	-	-	25	38	25	38
Change NE NGRID customer contact from permission to notification only	Low - 0-50%	-	50	-	-	-	25	-	25
Adopt vine growth gap spec at KS	High - 75-100%	-	30	-	-	23	30	23	30
Adopt vine growth gap spec at KS	Low - 0-50%	-	30	-	-	-	15	-	15
Reduce size of NE Unit Price areas	High - 75-100%	-	20	-	-	15	20	15	20
Reduce size of NE Unit Price areas	Low - 0-50%	-	30	-	-	-	15	-	15
Total		9,808	10,216	4,930	7,403	7,287	9,625	12,217	17,028
		Total	20,024						

Gas Operations (Excluding AMR)		Nominal		Expected Value					
Initiative Title	Confidence Level	Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)
Consolidate gas and electric workforce in overlap territories	Medium - 50-75%	2,183	176	1,092	1,637	88	132	1,180	1,769
Gas and Electric System Operations Dispatch (SOD)/Standardize SOD functions/SOD Consolidation (combines old DO_2, DO_3, and DO_5)	Medium - 50-75%	734	-	367	551	-	-	367	551
Consolidate and reduce AGA dues	High - 75-100%	-	240	-	-	180	240	180	240
Standardize scheduling tools and processes - High Priority	High - 75-100%	-	125	-	-	94	125	94	125
Standardize material specifications - High Priority	High - 75-100%	-	250	-	-	188	250	188	250
Standardized processes for design/mapping-High Priority	Medium - 50-75%	81	25	41	61	13	19	53	80
Enhance regulatory influence - High Priority	Medium - 50-75%	-	300	-	-	150	225	150	225
Encroachment criteria for public works projects - High Priority	Medium - 50-75%	405	559	203	304	280	419	482	723
Organizational consolidation - High Priority	High - 75-100%	1,213	2,500	910	1,213	1,875	2,500	2,785	3,713
Org alignment & work force optimization for field work in corrosion engineering - High Priority	High - 75-100%	185	-	139	185	-	-	139	185
Work mgt and records in corrosion engineering - Lower Priority	High - 75-100%	88	-	66	88	-	-	66	88
Adopt Process Ownership model	High - 75-100%	-	5,000	-	-	3,750	5,000	3,750	5,000
Field performance improvement / Supervisor Enablement, increase productivity targeted at reducing OT and/or FTEs. , , , ,	High - 75-100%	171	-	128	171	-	-	128	171
Roll out GPS to KeySpan / AVLs	High - 75-100%	599	-	449	599	-	-	449	599
Installation of Field Data Capture units	High - 75-100%	417	-	313	417	-	-	313	417
Standardization to minimum code compliance for Transmission line leak survey/patrol Utilize contractor to perform survey	High - 75-100%	518	(81)	389	518	(61)	(81)	328	437
Standardization to minimum code compliance for Distribution leak survey/patrol Utilize contractor to perform survey	Low - 0-50%	615	(563)	-	308	-	(282)	-	26

Standardization to minimum code compliance for Business District leak survey Utilize contractor to perform survey	High - 75-100%	180	(64)	135	180	(48)	(64)	87	116
Establish competitive pricing for locating (KS-NE)	Low - 0-50%	4,658	(3,500)	-	2,329	-	(1,750)	-	579
Establish competitive pricing for locating (KS-NYC)	Medium - 50-75%	990	(876)	495	743	(438)	(657)	57	86
Establish competitive pricing for locating (KS-NE)	Medium - 50-75%	540	-	270	405	-	-	270	405
Outsource Cast Iron Monitoring (KS-NE)	Low - 0-50%	1,163	(757)	-	582	-	(379)	-	203
Outsource Cast Iron Monitoring (KS-NYC)	Low - 0-50%	405	(247)	-	203	-	(124)	-	79
Avoidance of restoration by utilizing appropriate tools and equipment	Medium - 50-75%	-	625	-	-	313	469	313	469
Consistent response practices, crew-type for leak process (2 person, live gas)	Medium - 50-75%	720	-	360	540	-	-	360	540
Execution of repair by first responder for leak process at KED	Medium - 50-75%	540	-	270	405	-	-	270	405
Standardization of investigation and classification practices and reporting criteria for leak process Migrate to a similar leak data capture to afford data transparency, better planning & scheduling and overall better management of leaks.	High - 75-100%	90	-	68	90	-	-	68	90
Opportunity to eliminate site visits and shorten cycle time within NG.	High - 75-100%	56	18	42	56	14	18	56	74
Reduce restoration costs associated with service retirements	Medium - 50-75%	-	294	-	-	147	221	147	221
Standardization to minimum code compliance for valve inspection	Medium - 50-75%	49	7	25	37	4	5	28	42
Service retirement/ relocation policy for maintenance activity	High - 75-100%	-	550	-	-	413	550	413	550
Replacement Main and Service Installation Process: 1. Optimize the use of Low Dig Technologies / 2. Outsourcing opportunities for conventional and low dig technologies	Low - 0-50%	77	-	-	39	-	-	-	39
Replacement Main and Service Installation Process: 1. Optimize the use of Low Dig Technologies / 2. Outsourcing opportunities for conventional and low dig technologies	Medium - 50-75%	98	-	49	74	-	-	49	74

New Main and Service Installation Process: 1. Optimize the use of HDD / 2. Outsourcing opportunities for HDD, Optimize customer prepared trenching opportunity (Excavation/backfill by others)	Low - 0-50%	347	-	-	174	-	-	-	174
New Main and Service Installation Process: 1. Optimize the use of HDD / 2. Outsourcing opportunities for HDD, Optimize customer prepared trenching opportunity (Excavation/backfill by others)	Medium - 50-75%	230	-	115	173	-	-	115	173
URD/RUD Installation Process: 1. Optimize the use of Contractors / 2. Maximize opportunities for installation of joint utilities in a common trench	Low - 0-50%	49	-	-	25	-	-	-	25
URD/RUD Installation Process: 1. Optimize the use of Contractors / 2. Maximize opportunities for installation of joint utilities in a common trench	Medium - 50-75%	95	-	48	71	-	-	48	71
Spoil Recycling	High - 75-100%	(135)	659	(101)	(135)	494	659	393	524
Standardize vehicle specs	High - 75-100%	-	362	-	-	272	362	272	362
Excavation Equipment Optimization	High - 75-100%	54	251	41	54	188	251	229	305
Excavation Equipment Right Sizing	High - 75-100%	-	674	-	-	506	674	506	674
Reduce underutilized excess vehicles and equipment	High - 75-100%	-	341	-	-	256	341	256	341
Explore competitive pricing for tapping process (ie.live gas, tie-ins, cut outs, large diameter drillings),	Low - 0-50%	50	-	-	25	-	-	-	25
Increase self-service for plumbers, contractors, and prospects through web and IVR	Medium - 50-75%	330	-	165	248	-	-	165	248
Procurement Savings - Low	High - 75-100%	-	1,004	-	-	753	1,004	753	1,004
Procurement Savings - High	Medium - 50-75%	-	588	-	-	294	441	294	441
Consolidation of control centers: Keyspan	Medium - 50-75%	392	736	196	294	368	552	564	846
Resource sharing in I&R	Medium - 50-75%	-	125	-	-	63	94	63	94
Odorization	High - 75-100%	-	140	-	-	105	140	105	140
Standardize maintenance/inspection intervals in I&R	High - 75-100%	-	20	-	-	15	20	15	20
Standardize LNG / LP-Air operations	Medium - 50-75%	-	125	-	-	63	94	63	94
Competitive Pricing Adjustment									
Total		18,187	9,606	6,271	12,658	10,334	11,469	16,604	24,127
		Total	27,793						

Generation & Energy Supply										
Initiative Title	Confidence Level	Nominal		Expected Value						
		Labor O&M Savings (\$000s)	Non-Labor O&M (\$000s)	Labor O&M Savings Low (\$000s)	Labor O&M Savings High (\$000s)	Non-Labor O&M Savings Low (\$000s)	Non-Labor O&M Savings High (\$000s)	Total O&M Savings Low (\$000s)	Total O&M Savings High (\$000s)	
Move the nomination/confirmation process from Gas Operations	Certain - 100%	90	-	90	90	-	-	90	90	
Move the nomination/confirmation process from Gas Operations	Medium - 50-75%	96	-	48	72	-	-	48	72	
Summary of all non-labor savings	High - 75-100%	-	8	-	-	6	8	6	8	
Consolidate positions associated with GSP_1 to GSP_13	Certain - 100%	90	8	90	90	8	8	98	98	
Consolidate positions associated with GSP_1 to GSP_13	High - 75-100%	238	-	179	238	-	-	179	238	
Impact of initiatives GTPO_2 to GTPO_7	Certain - 100%	681	335	681	681	335	335	1,016	1,016	
Impact of initiatives GTPO_2 to GTPO_7	High - 75-100%	-	125	-	-	94	125	94	125	
Total		1,195	476	1,088	1,171	443	476	1,530	1,647	
		Total	1,671							

Division Data Request DIV 8-4

Request:

Re: page 9, lines 4-18 of the direct testimony of witnesses Feibelman and Levin, please detail the witnesses' understanding of the uncertainties and constraints on achieving 100% of potential savings.

Response:

In order to achieve savings, some recommendations will require:

- Changes in work practices and labor agreements with one or more labor unions;
- Productivity improvements by the workforce;
- Regulatory approvals;
- Successful negotiations with vendors to achieve price concessions; and/or
- Changes in customer behavior (for example, using self-service instead of calling a customer service representative)

Because a level of the savings is dependent upon the actions of others (i.e., labor unions, workforce, regulators, vendors and customers), there is a consequent level of uncertainty in terms of achieving 100% of the potential savings.

The Company believes that the Integration Team's methodology for addressing uncertainties and constraints (as described in the response to Data Request DIV 8-3) was reasonable, and with \$200 million of savings built into National Grid's projections, is slightly above the **high end** of the "expected value" range of savings (\$199 million) and equals 90% of the nominal value of savings (\$222 million) shown on Schedule NG-AVF/RJL-1.

Division Data Request DIV 8-5

Request:

Re: page 10, line 3 through page 11, line 5 of the direct testimony of witnesses Feibelman and Levin, please provide the data, analyses, and electronic spreadsheet files upon which the Company and/or its witnesses have relied upon to support the Company's claimed costs to achieve the National Grid – Keyspan merger.

Response:

Attachment DIV 8-5 provides the information requested. The 1st tab of the attachment provides a summary of the total costs to achieve that was submitted as Schedule NG-AVF/RJL-2. The subsequent tabs provide the supporting details by cost component.

	Estimated Costs to Achieve \$ Millions
Component	
Personnel costs	
(1) VERO programs (management)	103
(2) Voluntary severance (management)	15
(3) Retention agreements	12
(4) Relocations	5
(5) Executive severance and options	120
Sub-total	255
IT integration costs	
(1) Applications consolidation	120
(2) Data center and network consolidation	41
Sub-total	161
Other integration costs	
(1) Costs to achieve merger savings identified by Integration Team	57
(2) Integration process costs	15
(3) Insurance run-offs (KeySpan)	20
Sub-total	92
Transaction costs	
(1) Bankers fees and expenses	22
(2) Legal fees and expenses	3
(3) Accounting and audit fees	4
(4) Other professional services	8
(5) Transfer tax	69
Sub-total	107
Total CTA	615
Less: Executive severance and options costs included above	(120)
Less: IT conversion capital costs included above	(80)
Net Total CTA	415
Notes	
KeySpan costs excluded from above	
\$54 million (includes \$31 million bankers fees and expenses)	
CTA excludes AMR and pre-merger initiatives	

Personnel costs	Estimated Costs to Achieve \$ Millions
(1) VERO programs (management)	103.5
Management FTE reductions (less executive reductions): 653	
Number of VERO reductions (69%) : 450	
Cost per FTE: \$230,000	
Cost: Number of VERO reductions x \$230,000	
(2) Voluntary severance (management)	14.8
Management FTE reductions (less executive reductions): 653	
Number of severance reductions (16%) : 106	
Cost per FTE: \$140,000	
Cost: Number of severance reductions x \$140,000	
(3) Retention agreements	12.0
(\$7 million KeySpan, \$5 million National Grid)	
(4) Relocations	5.0
Based on 25 relocations @ \$100,000 per relocation	
Additional relocations totalling \$2.5 million	
(5) Executive severance and options	120.1
Executives eligible : 70	
Executives impacted : 42 (60% of eligible)	
Cost per executive: \$1,050,000	
(2x annual compensation plus allowance for extension for medical benefits)	
Severance cost: 42 x \$1,050,000; \$44.1 million	
Options cost: \$76 million	
Total	255.4

IT integration costs	Estimated Costs to Achieve \$ Millions
(1) Applications consolidation	
ERP/Work Management	23.6
GIS/Outage Management	28.8
CRIS	24.2
CAS	27.1
Other applications	15.8
Sub-total	119.5
(2) Data center and network consolidation	
Data center	30.9
OneNet	8.3
Voice, Data, Service Management	2.1
Sub-total	41.3
Total	160.8
Notes: figures from April 2007 update after final report	

Other integration costs	Estimated Costs to Achieve \$ Millions
(1) Costs to achieve merger savings identified by Integration Team	
Electric T&D	18.4
Gas Operations	7.9
Customers & Markets	2.3
External Affairs	-
Finance	0.2
Shared Services--Financial Services	0.8
Shared Services--Property Services	15.6
Shared Services--Supply Chain Services	10.9
Shared Services--Records Management	0.1
Shared Services--HR Services	0.5
Shared Services--Customer-Related Services	0.1
SHES	0.4
Corporate Services	0.1
Sub-total	57.3
(2) Integration process costs	
Consultants and contractors	12.1
Hardware/software, materials and other incremental costs	2.9
Sub-total	15.0
(3) Insurance run-offs (KeySpan)	
General Liability (2x annual premium of \$4.6 milion)	9.1
Directors and Officers (2x annual premium of \$3.5 million)	7.0
Fiduciary (2x annual premium of \$1.4 million)	2.8
Employment practices liability (2x annual premium of \$0.4 million)	0.8
Sub-total	19.7
Total	92.0

Transaction costs	Estimated Costs to Achieve \$ Millions
(1) Bankers fees and expenses	
Firm 1 - paid to date	9.2
Firm 2 - paid on completion	9.1
Firm 3	2.1
Firm 4	1.7
Sub-total	22.1
(2) Legal fees and expenses	
Firm 1	1.4
Firm 2	0.8
Firm 3	0.8
Sub-total	3.0
(3) Accounting and audit fees	
Firm 1	2.3
Firm 2	1.6
Firm 3	0.4
Sub-total	4.3
(4) Other professional services	
Firm 1	2.4
Firm 2	0.6
Firm 3	0.1
Firm 4	3.7
Firm 5	1.2
Firm 6	0.1
Firm 7	0.3
Sub-total	8.4
(5) Transfer tax	69.0
Total	106.8
KeySpan costs excluded from above	
\$54 million (includes \$31 million bankers fees and expenses)	

Division Data Request DIV 8-6

Request:

Re: Schedules NG-AVF/RJL-1 and NG-AVF/RJL-1, please provide the electronic spreadsheet files, and all supporting data, analyses, and assumptions that were relied upon to generate the referenced schedules.

Response:

For purposes of this response, the Company has assumed that the 2nd schedule mentioned in the request is Schedule NG-AVF/RJL-2 and not Schedule NG-AVF/RJL-1.

Please see Attachment DIV 8-3 (regarding Schedule NG-AVF/RJL-1) and Attachment DIV 8-5 (regarding Schedule NG-AVF/RJL-2).

Division Data Request DIV 8-7

Request:

Re: page 6, line 19 through page 7, line 1 of the direct testimony of witness Mongan, please:

- a. Provide the data, analyses, and studies relied upon to assert that typical initial costs for the installation of natural gas equipment are higher than those for oil replacements for:
 - i. Small commercial and industrial customers
 - ii. Residential customers

- b. Provide the Company's assessment of the current payback period for customer investments in the installation of natural gas equipment as an alternative to replacing existing oil heating equipment for:
 - i. Small commercial and industrial customers
 - ii. Residential customers

Response:

(a) The Company does not collect or maintain data on the costs charged by independent contractors to complete heating replacements or conversions at the request of residential or small C&I customers. The statement in the testimony regarding higher "initial costs" refers to the fact that there are incremental requirements and associated costs that are incurred when converting from oil to gas. These costs are above and beyond the replacement of the heating unit and include such costs as the installation of a new gas service connection and gas piping, as well as oil tank removal and chimney re-lining.

Typical costs for these incremental items include:

Customer contribution for new service connection	\$800
Standard oil-tank removal cost	\$325 + permit fees
Average cost for chimney liner labor)*	\$600-\$700 (materials and labor)*
Gas piping (20-25 feet @ \$20-\$30/foot)	\$400-\$750*

* Estimate based on verbal discussions with contractors

(b) The Company does not collect or maintain data on the costs charged by independent contractors to complete heating replacements or conversions at the request of residential or small C&I customers. The pricing offered by independent contractors to their clients is competitively sensitive information that is not generally available in the public domain.

However, it is important to note that the payback period is largely a function of energy cost. For example, if the installation cost is \$5,000 for an oil-to-gas conversion and \$3,500 for an oil-to-oil system replacement, the difference in price of \$1,500 represents an incremental investment for the customer. The incremental investment associated with the oil-to-gas conversion may make sense for the customer if the customer is able to cut energy costs on a going forward basis. This means that energy cost is the principal driver of the payback analysis, rather than contractor installation costs.

An example of a customer's payback analysis would be as follows. According to the Energy Information Administration (2006), a typical homeowner uses 800-1,250 gallons of oil annually. Assuming the purchase of 850 gallons of oil at \$3.50/gallon, the cost for the homeowner's annual oil consumption would be \$2,975.

The gas equivalent of one gallon of oil is 0.1385 dekatherms ("Dth"), so that the annual gas usage equivalent to 850 gallons of oil is 117.7 Dth. Using the gas cost reflected in the Company's initial filing in this proceeding, which presents a GCR factor of \$10.48 per Dth (see Attachment NG-DAH-6 page 1, line 7), the unit price for gas service including the distribution charge would be \$15.80 per Dth, for a total annual cost of \$1,865.

The resulting annual energy savings in this example would be \$1,110 because of the relative price advantage associated with natural gas at this point in time. With savings totaling \$1,110 and an incremental investment of \$1,500, the payback period would be 1.35 years.

Division Data Request DIV 8-8

Request:

Re: page 7, lines 1-5 of the direct testimony of witness Mongan, please:

- a. Provide the data, analyses and studies upon which the Company relies to assess the numbers of existing non-heating customers in each rate class who have the potential for:
 - i. Replacement of oil space heating equipment with natural gas space heating equipment;
 - ii. Replacement of electric space heating equipment with natural gas space heating equipment;
 - iii. Replacement of oil-fired domestic water heating equipment with natural gas domestic water heating equipment;
 - iv. Replacement of electric domestic water heating equipment with natural gas domestic water heating equipment.
- b. Provide the data, analyses, and studies upon which the Company relies to assess the economics of existing non-heating residential customer conversions:
 - i. From electric space heating to natural gas space heating
 - ii. From electric domestic water heating to natural domestic water heating
- c. Provide the data, analyses, and studies upon which the Company relies to assess the economics of existing non-heating small commercial customer conversions:
 - i. From electric space heating to natural gas space heating
 - ii. From electric domestic water heating to natural domestic water heating

- d. Provide the data upon which the Company relies to assess the number of existing residential non-heating gas service customers who presently are provided space heat through central heating equipment in a multi-dwelling unit building.
- e. Provide the data upon which the Company relies to assess the number of existing residential non-heating gas service customers who presently are provided domestic water heating through central water heating equipment in a multi-dwelling unit building.
- f. Provide the data upon which the Company relies to assess the number of existing small commercial non-heating gas service customers who presently are provided space heat through central heating equipment which also serves other tenants in the same building or business complex.
- g. Provide the data upon which the Company relies to assess the number of existing small commercial non-heating gas service customers who presently are provided domestic water heating through central water heating equipment which also serves other tenants in the same building or business complex.

Response:

a. The number of existing non-heating customers in each rate class was identified through a review of the Company's billing records. All single family and multi-unit buildings, with up to 5 residential units per building, are either served under Rate 10 or Rate 12. Those customers served under Rate 10 "Residential Non-heating" are all assumed to be potential prospects for conversion to gas heat.

Similarly, commercial low-use customers were identified by rate class. Specifically, large and extra-large customers served under Rates 23, 24 & 58 in seven specific rate classifications are classified as low-use, and therefore are candidates for gas heating conversions. For small and medium customers served under Rates 21 and 22, the Company considered those customers whose summer usage does not indicate seasonality (*i.e.*, with summer usage more than 31% of the annual usage) are also considered candidates for gas heating conversions.

i. Please note that the Company does not track or have access to reliable data regarding existing heating arrangements of low-use natural gas customers. However, the Company's experience in the Northeast is that nearly all low-use gas customers are heating oil customers. In that regard, the US Census reports that in the year 2000, 46.3% of homes in Rhode Island were heated with natural gas; 2.5% were heated with liquid propane; 7.6% were heated with electricity and 42.1% were heating-oil customers. The remaining customers rely on a variety of other fuel sources such as

wood. This research indicates that nearly 80% of the homes not heated with natural gas are heated with fuel oil. See www.census.gov.

ii. Please see the response to item (a)(i), above.

iii. The population of residential customers who may replace a domestic non-gas water system with a new natural gas water-heating are not likely to be customers of the Company (either heating or non-heating). In the Company's experience a home that is using natural gas as its heating fuel would not use a fuel other than natural gas for its water-heating system. Therefore, non-gas customers were identified through a review of the Company's electric billing records. There are no company records or public data that accurately distinguish between the types of fuel used in domestic water heaters in Rhode Island. However, national data published by the Gas Appliance Manufacturers Association, indicates that most residential domestic water heaters that are not gas-fired utilize electricity. Please see www.gamanet.org.

iv. Please see the response to item (a)(i) and (iii), above.

(b) Please note that the Company does not track or have access to reliable data regarding the existing heating arrangements of low-use natural gas customers. In addition, please note that electric heating customers are not included in the Company's targeted mailings through the Gas Marketing Program because there is greater chance that the conversion effort will be more extensive and costly, especially for baseboard-heated homes and buildings.

i. The Company does not evaluate the specific economics of any particular heating source versus another heating source from a customer perspective because there are a multitude of factors that weigh into the customer's economic analysis about which the Company has no information. The intent of the Company's Gas Marketing Program is to provide customers with the information necessary to weigh the costs and benefits of their heating alternatives at the time a decision must be made regarding replacement heating equipment. In terms of overall system economics, the Company recognizes that there are incremental benefits to the gas system when an existing low-use gas customer increases system utilization through a decision to replace non-gas heating and hot water equipment with natural gas equipment. For the small commercial and residential markets, this increase in gas load is almost always supported by existing distribution facilities. Therefore, the incremental utilization translates to a broader dissemination of fixed gas distribution costs.

ii. Please see the Company's response to item (b)(i), above. The Company's response to item (b)(i) pertains equally to water-heating services.

(c) Please see the response to item (b), above.

(d) The Company's analysis is based on an assessment of the number of residential and small commercial and industrial customers who are low-use gas customers, without regard for the type of heating system currently in place. The Company has not tracked or maintained data regarding the hot water or heating equipment system types for any of the Company's non-heating gas customers.

(e) Please see the response to item (d), above.

(f) Please see the response to item (d), above.

(g) Please see the response to item (d), above.

Division Data Request DIV 8-9

Request:

Re: page 7, lines 5-8 of the direct testimony of witness Mongan, please provide the data, analyses, studies, and other materials that document the referenced “Company experience” relating to overcoming obstacles to customer funding of replacement equipment and completion of the installation process for natural gas equipment.

Response:

The Company’s experience is based on the deployment of various equipment discount programs in Massachusetts and New Hampshire over the past several years. When initiating the programs in 2000, the Company offered a free heating equipment program, which was later modified to an equipment discount program, in order to better align the program’s costs and benefits. The Company’s experience is that the equipment program is an important element of the Company’s efforts to facilitate gas conversions, and although fewer conversions occur with a discounted equipment offer rather than a free equipment offer, the number of conversions with some type of equipment offer far exceeds the level of conversions historically experienced without any program at all in place.

Listed below is the average number of conversions occurring in the years since 1996 in Massachusetts and New Hampshire, grouped in accordance with the program characteristics. Specifically, the numbers below show that annual conversions in Massachusetts and New Hampshire averaged just under 4,300 customers, prior to the introduction of an equipment program in Massachusetts and New Hampshire. In this proceeding, the Company is proposing to introduce an equipment discount program, which is the same as that now in place in Massachusetts and New Hampshire. With the current program in place, the Company is experiencing approximately 10,700 conversions on average annually. Based on this information, the Company has concluded that the equipment program is a pivotal component of the overall program.

Calendar Years	Average Annual Heating Conversions/Year
1996-99	4,298 (without equipment program in place)
2000-03	14,078 (with free equipment program)
2004-07	10,718 (with discounted equipment program)

Division Data Request DIV 8-10

Request:

Please provide a complete copy of most recent appliance saturation study available to the Company for its Rhode Island gas service territory.

Response:

The Company is not aware of any specific saturation study prepared for the natural gas or electric industry in Rhode Island. However, the Northeast Gas Association (“NGA”) regularly compiles data from a variety of other reports, which includes statistical data for the northeast as a whole with some data by state. Attachment DIV-8-10 is Section VII of NGA’s 2007 report, along with a page from a subsequent chapter with statistics that would be included in a formal saturation study.

STATISTICAL GUIDE TO THE NORTHEAST U.S. NATURAL GAS INDUSTRY 2007

*An annual review of statistics and trends
relating to the region's natural gas industry*



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IV.

NATURAL GAS TRENDS IN THE NORTHEAST U.S.

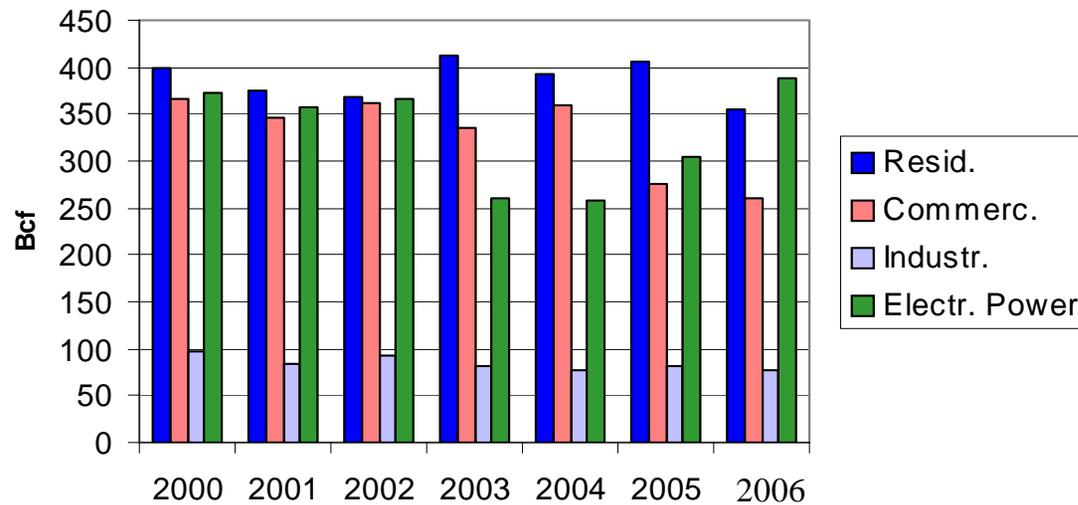
The following pages provide an overview of the natural gas industry in the Northeast U.S.

Among the areas addressed are:

- *gas consumption by sector*
- *average regional price trends*
- *residential gas heating saturation*
- *gas and electric generation*
- *market growth projections.*

NEW YORK NATURAL GAS CONSUMPTION, 2000 - 2006

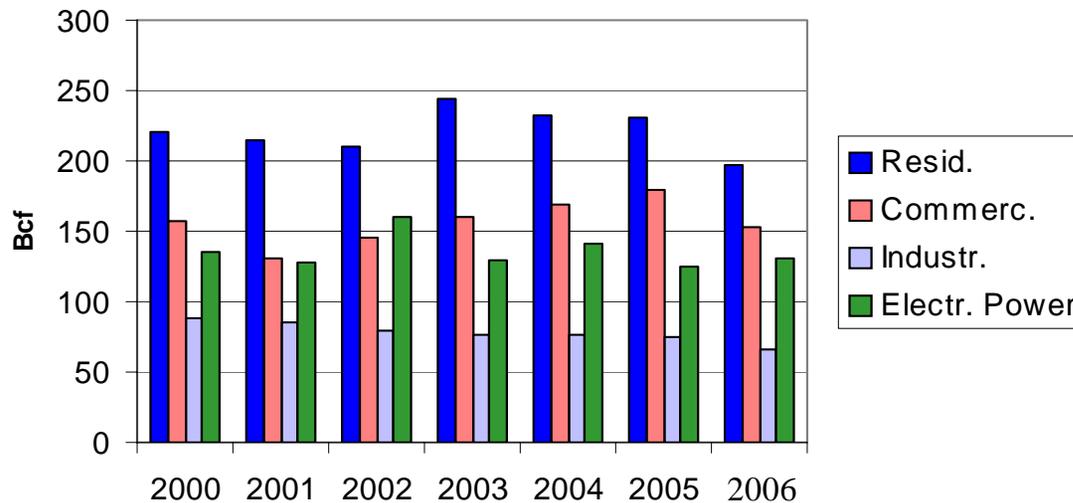
Natural gas consumption in New York in 2006 was 1,085 billion cubic feet (Bcf) according to the U.S. EIA.



Source: U.S. Energy Information Administration

NEW JERSEY NATURAL GAS CONSUMPTION, 2000 - 2006

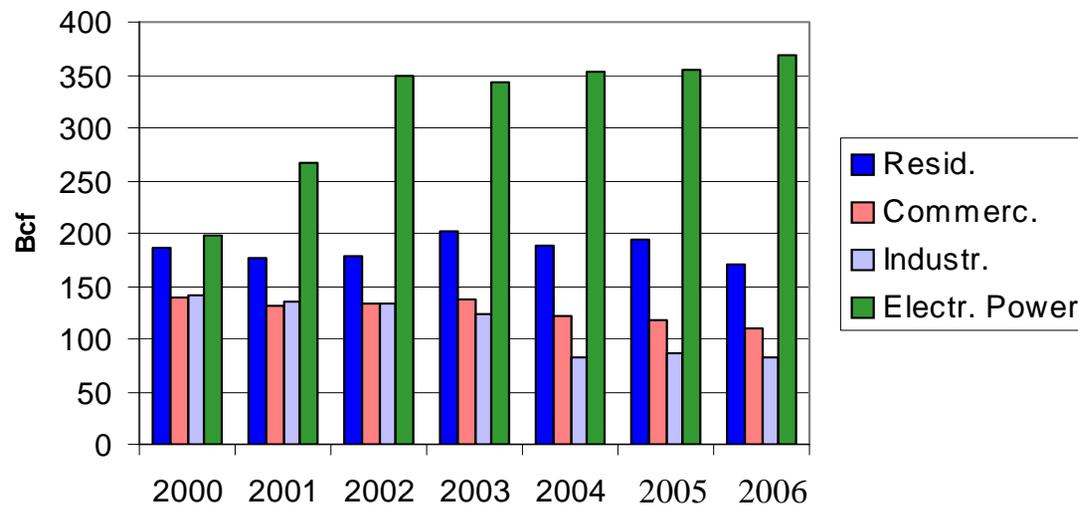
Natural gas consumption in New Jersey in 2006 was 547 billion cubic feet (Bcf) according to the U.S. EIA.



Source: U.S. Energy Information Administration

NEW ENGLAND NATURAL GAS CONSUMPTION, 2000 - 2006

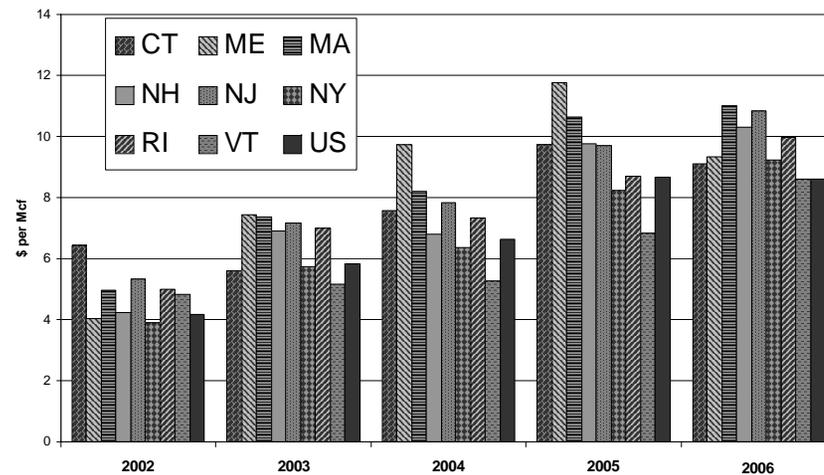
Natural gas consumption in New England in 2006 was
734 billion cubic feet (Bcf) according to the U.S. EIA.



Source: U.S. Energy Information Administration

NATURAL GAS PRICES IN THE NORTHEAST

Average City Gate Prices, Northeast States and U.S. Average, \$ per Mcf, 2002- 2006



Average city gate prices for natural gas for the states in the region for the period of 2002-2006 are displayed here as compared to the U.S. average. The commodity price has been increasingly volatile in the last few years and notably so in 2005 as a result of the Gulf Coast hurricanes that reduced Gulf production to a considerable degree. As noted by U.S. EIA, "most U.S. average monthly prices declined through 2006."

The Northeast states in general, and New England in particular, generally pay higher than the U.S. average for natural gas (as for other energy commodities), a reflection of the lack of local supplies and higher fuel transportation costs.

Source: U.S. Energy Information Administration

RESIDENTIAL HEATING FUELS

STATE	2006 %	1990 %	1980 %
Connecticut	Gas, 30 Oil, 50 Elec., 15	Gas, 26.3 Oil, 54.4 Elec., 15.1	Gas, 21.6 Oil, 63.8 Elec., 10.7
Maine	Gas, 3 Oil, 77 Elec., 5	Gas, 1.8 Oil, 69.5 Elec., 11.7	Gas, 1.5 Oil, 71.3 Elec., 10.6
Massachusetts	Gas, 47 Oil, 36 Elec., 13	Gas, 38 Oil, 44 Elec., 13.5	Gas, 32.8 Oil, 54 Elec., 9.6
New Hampshire	Gas, 19 Oil, 55 Elec., 8	Gas, 15.2 Oil, 55.8 Elec., 12.4	Gas, 11.8 Oil, 59.8 Elec., 13.4
New Jersey	Gas, 71 Oil, 16 Elec., 11	Gas, 57.5 Oil, 29.2 Elec., 10	Gas, 44.2 Oil, 46 Elec., 7.9
New York	Gas, 52 Oil, 33 Elec., 9	Gas, 45.7 Oil, 39.6 Elec., 8.5	Gas, 39.3 Oil, 51.9 Elec., 5.1
Rhode Island	Gas, 48 Oil, 41 Elec., 8	Gas, 40.7 Oil, 47 Elec., 7.9	Gas, 32.3 Oil, 57.2 Elec., 6.9
Vermont	Gas, 14 Oil, 56 Elec., 4	Gas, 8 Oil, 54.3 Elec., 9.1	Gas, 6 Oil, 61 Elec., 10.1

Source: U.S. Census Bureau, "Profile of Selected Housing Characteristics." Data is 2006 estimates.

Natural gas continues to make inroads in the residential heating market in the region. This table illustrates the leading house heating fuels, by percentage, for the years 1980, 1990 and 2006.

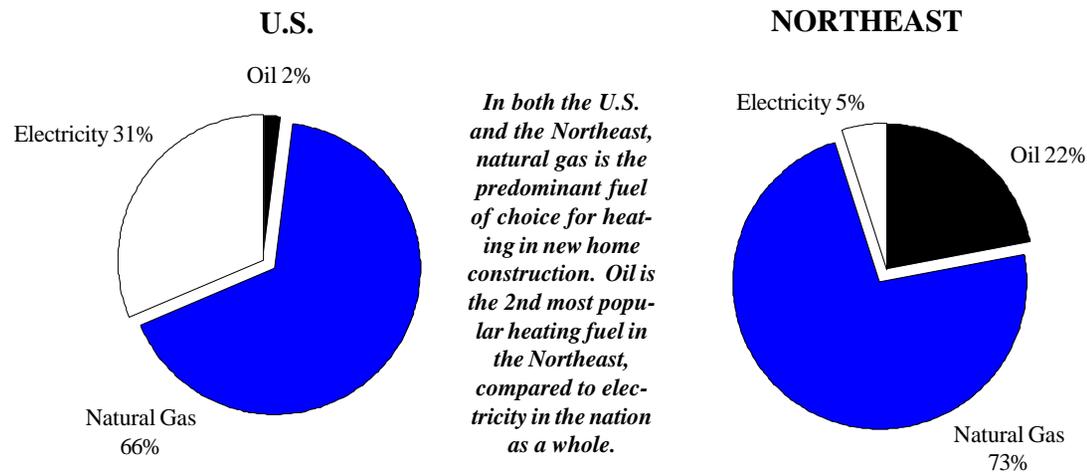
For the 8-state region, natural gas in 2006 represented 49% of home heating, compared to 35% for heating oil.

In the year 2006, natural gas represented slightly over 50% of the home heating market in New York state, and over two-thirds of the home heating market in New Jersey.

In New England in 2006, gas's share had grown to 34.4% for the region as a whole. Heating oil is still the dominant fuel in that sub-regional heating market, at 46.6%.

Other significant fuels, not shown here, are wood (2.5% in New England) and propane (4.5% in New England, 3% in New York, and 2% in New Jersey).

NEW HOME HEATING FUEL CHOICE - 2005

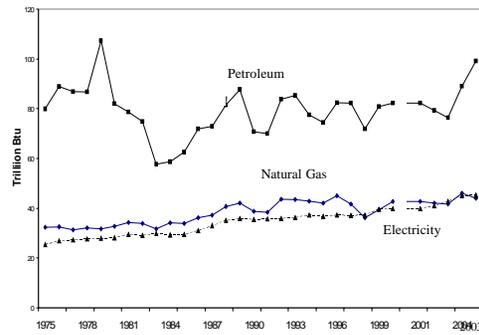


(The data presented here represents new single-family home construction.)

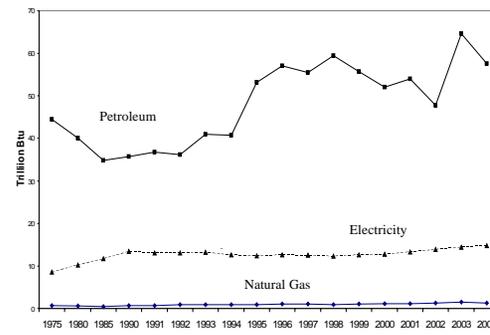
Source: U.S. Bureau of the Census

LEADING FUELS IN ANNUAL RESIDENTIAL CONSUMPTION, NORTHEAST STATES, 1975-2004

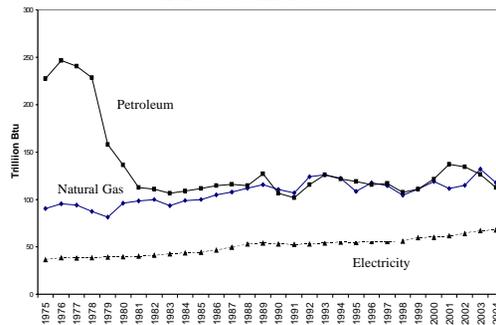
Connecticut



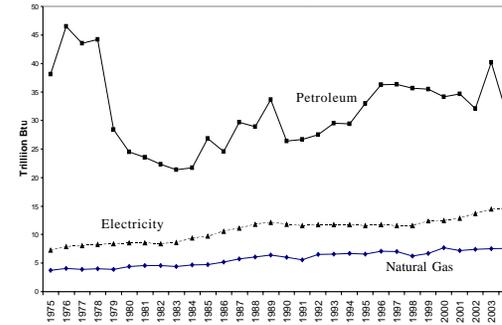
Maine



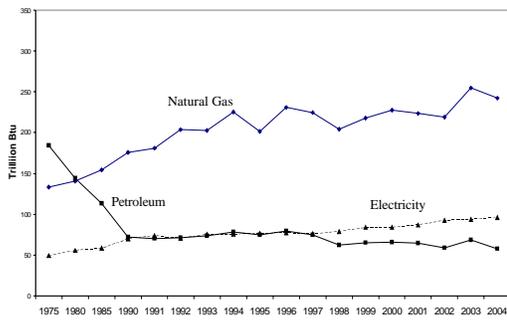
Massachusetts



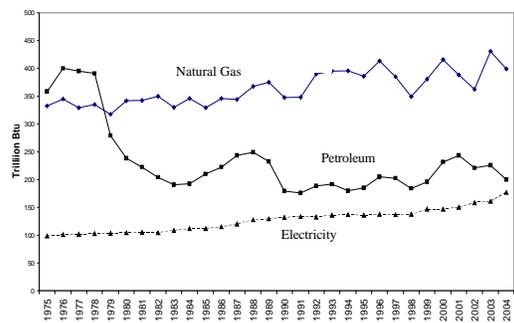
New Hampshire



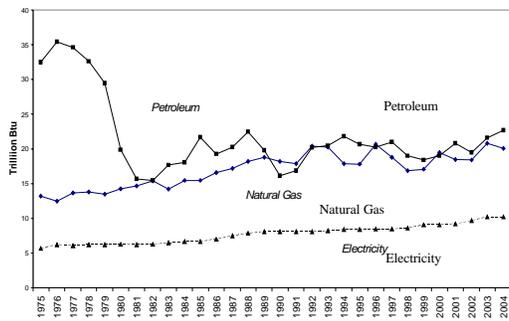
New Jersey



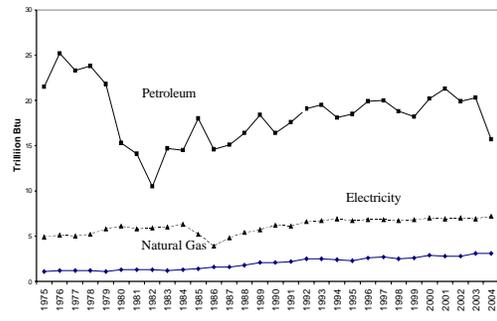
New York



Rhode Island



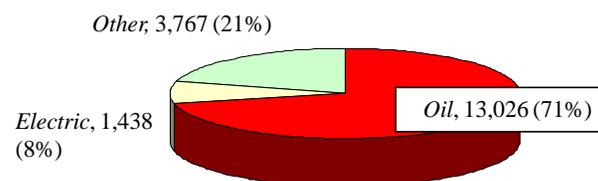
Vermont



Source: U.S. Energy Information Administration, "State Energy Data Report 2004", released 2007.

ANNUAL CONVERSIONS TO NATURAL GAS IN NEW ENGLAND

2006 Conversions to Natural Gas - from:



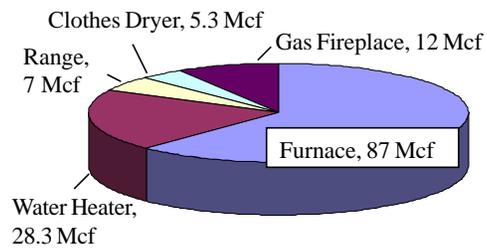
New England LDCs report consistent levels of residential and business conversions owing to the benefits of natural gas: convenience, efficiency, reliability, and cleanliness. The downstate New York LDCs also report new installations of over 26,000 in 2006.

*Source: Northeast Gas Association. * Data series for 2006 incomplete, with several companies not reporting, citing market confidentiality - so actual conversion totals are assumed to be higher than reported here.*

ANNUAL GAS CONSUMPTION BY APPLIANCE RESIDENTIAL MARKET

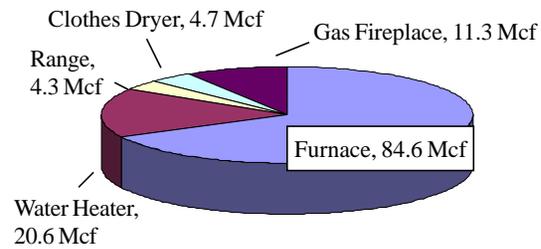
**New England Gas
Consumption per Major
End-Uses, Mcf per household,
annual, 2005**

Source: American Gas Association



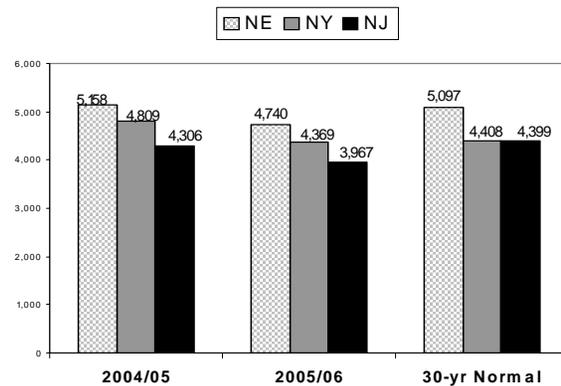
**Mid-Atlantic Gas
Consumption per Major
End-Uses, Mcf per household,
annual, 2005**

Source: American Gas Association



Numbers rounded off.

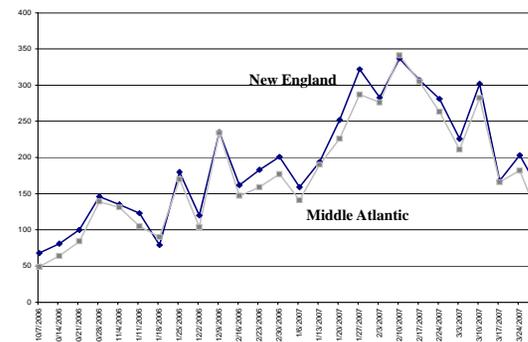
RECENT NORTHEAST HEATING SEASON DEGREE DAYS



Heating degree days measure the coldness of the weather experienced. The graph above compares recent heating degree day levels in New England, New York and New Jersey for recent winters, compared to the 30-year normal. As noted earlier, the Northeast is overall a heating-driven delivery system.

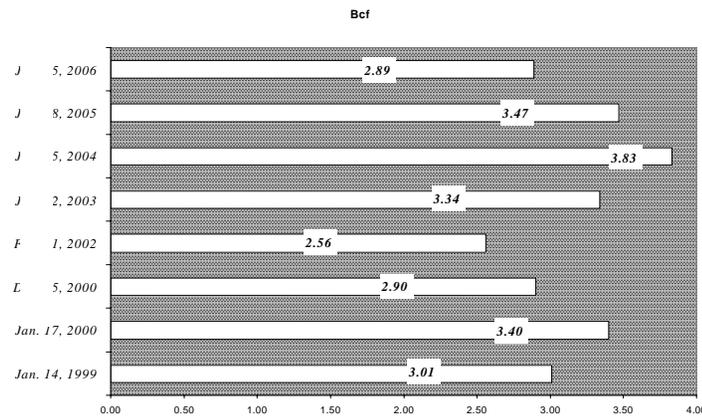
Sources: U.S. NOAA, American Gas Association

NORTHEAST HEATING SEASON DEGREE DAYS Winter of 2006/2007



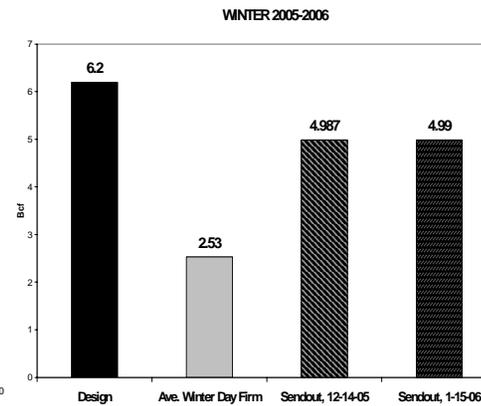
The recent 2006/07 heating season was warmer-than-normal in the U.S. In the Northeast, it was also warmer-than-normal, with an unusual pattern - a very warm start to the winter and then a lingering period of cold weather from mid-January into March. This graph illustrates New England and Middle Atlantic regional heating degree days for the period from October 2006 to the end of March 2007. It was essentially an undramatic winter weather period; the highest volume days on the LDC systems were recorded on February 3 and March 5, 2007.

**PEAK DAY SEND-OUT,
NEW ENGLAND LDCs**



Peak day throughput recorded during the past several heating seasons is shown here (note: this is for the LDC system only; it does not reflect gas power plants served directly off the pipeline network). For the 2005/06 year, the New England LDCs recorded the following demand requirements, total, in million cubic feet (MMcf):
design day: 3,856
average winter day firm sales: 1,701
actual peak day sendout, 1/15/06: 2,893

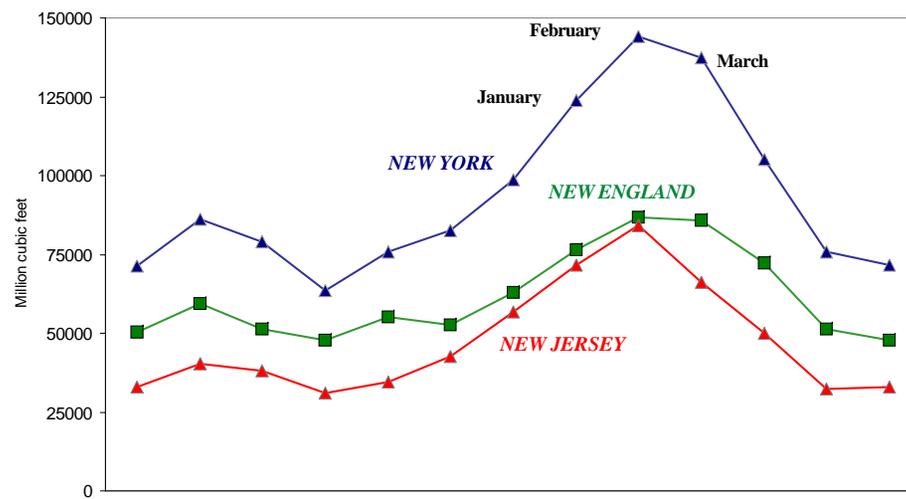
**PEAK DAY SEND-OUT,
NEW YORK LDCs**



For the 2005/06 heating season, the New York LDCs recorded the demand requirements illustrated above. The top 2 sendout days, in mid-December and mid-January, were quite close in throughput, just under 5 Bcf total.

Source: Northeast Gas Association

NEW ENGLAND / NEW JERSEY / NEW YORK MONTHLY LOAD CURVE

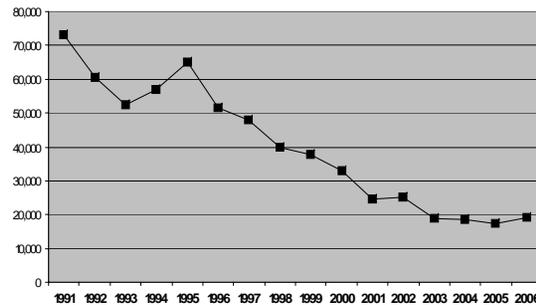


This graph displays the monthly variations in gas consumption in New England, New Jersey and New York, for the illustrative period of June 2006 through June 2007. As can be seen, all three regions are winter-peaking systems, recording their highest sendouts in this annual cycle in February. This most recent heating season was unusually warm from late November to mid-January, with a colder spell lingering through March.

Source: U.S. Energy Information Administration

INTERRUPTIBLE NATURAL GAS SERVICE

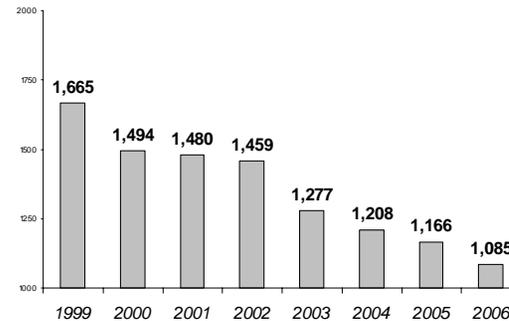
LDC SALES TO INTERRUPTIBLE CUSTOMERS, NEW ENGLAND, MMcf, Annual, 1991 - 2006



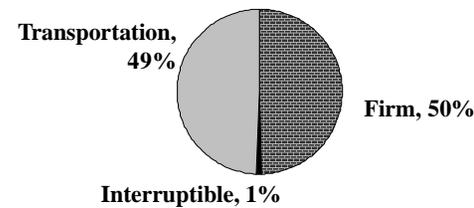
Interruptible natural gas service provides certain customers – mainly larger commercial and industrial customers that have dual-fuel capability – with a schedule or contract terms which anticipate and permit interruption of gas usage on short notice, generally in peak-load seasons. In exchange, the customer pays rates for natural gas primarily based on its alternate fuel price. This service allows customers to take advantage of a competitive energy market, and provides the local gas utilities with a valuable load management tool. Interruption may be manually controlled by the utility or may be automatic, based on outside temperatures.

Source: Northeast Gas Association

NUMBER OF INTERRUPTIBLE CUSTOMERS, NEW ENGLAND LDC SYSTEM

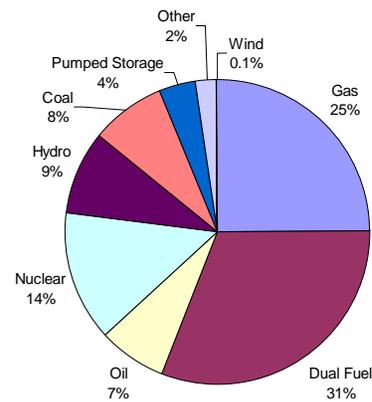


INTERRUPTIBLE SALES AS PERCENTAGE OF NEW YORK LDC SYSTEM SALES, 2006



NPCC U.S. REGION (NE & NY) PROJECTED CAPACITY GROWTH

PROJECTED CAPACITY FUEL MIX, 2012

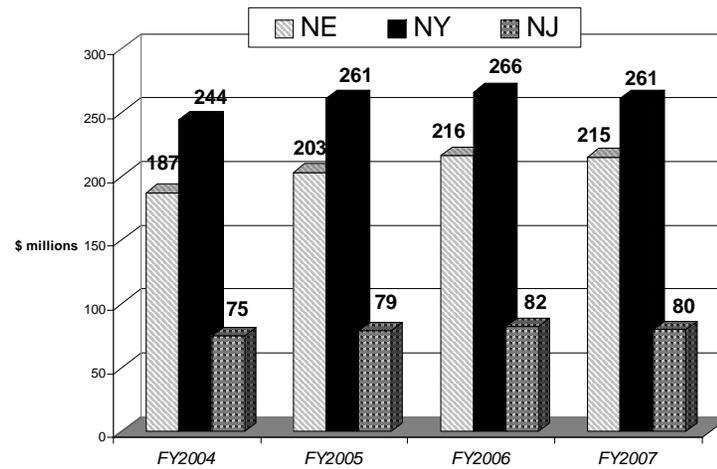


In the NPCC's recent annual assessment, natural gas was projected as the fuel type that would show the most growth in electric generation in NY and NE up to 2012.

Source: Northeast Power Coordinating Council (NPCC), "2007 NPCC Statistical Brochure", Oct. 2007

Natural gas is a significant fuel in the Northeast electric power system. The North American Electric Reliability Corporation (NERC) recently noted that "natural gas has become the 'fuel of choice' for new-build generation as gas-fired plants are typically easy to construct, require little lead time, emit less CO₂, and are generally cheaper to construct than their coal and oil counterparts." At the same time, the region's electric power grids have expressed the need for greater system fuel diversity and concern about "overreliance on gas." The NERC's recent long-term assessment notes that new capacity will be needed in New England beyond 2008, "requiring a total of 4,300 MW by 2015/2016." For New York, the NERC report states that New York State, "beyond 2011," will need additional resources of between 1,750 MW and 2,000 MW through 2016.

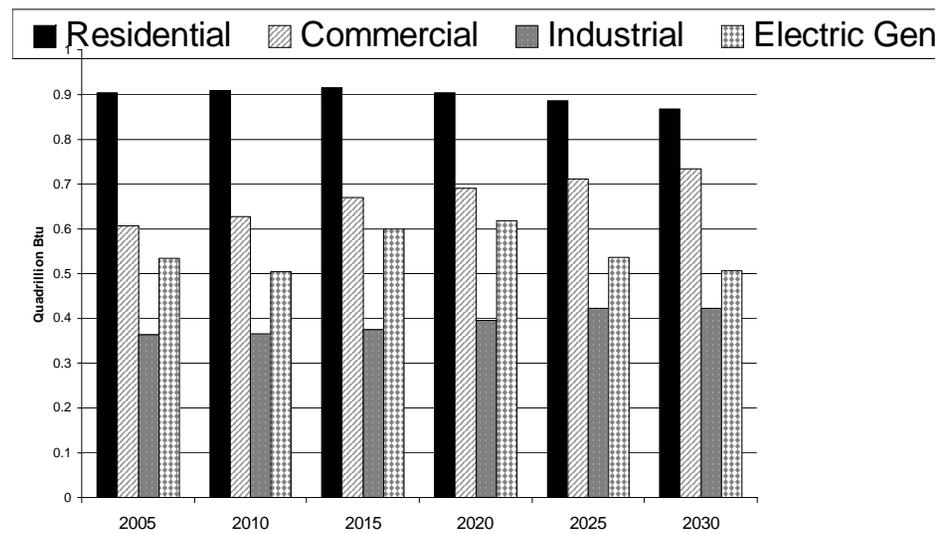
NORTHEAST STATES' RECEIPT OF FEDERAL LIHEAP FUNDS



The Low-Income Home Energy Assistance Program (LIHEAP) provides important funding for winter heating supplies for low-income residents of the region. Over half a billion dollars was provided in the FY2007 appropriation year for the 8 Northeast states, reflecting a regular allotment and contingency allotments, in recognition of the impact of higher fuel prices on low-income consumer bills. Additional funding is also strongly urged by NGA for the 2007-08 heating season.

Source: U.S. Department of Health and Human Resources.

EIA'S PROJECTED GROWTH IN MIDDLE ATLANTIC GAS CONSUMPTION TO 2030

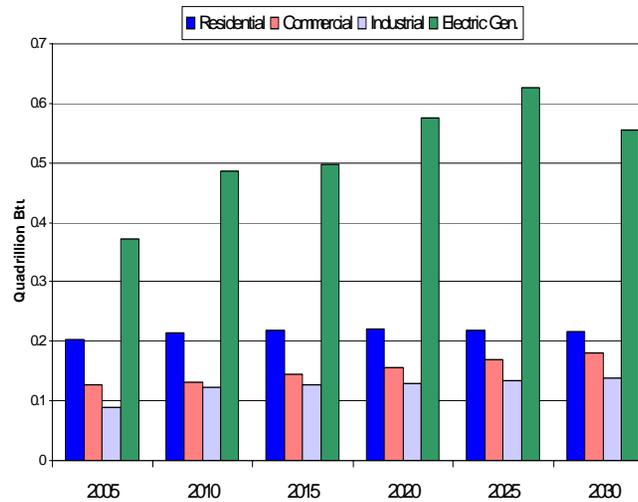


EIA's 2007 projection forecasts 0.2% annual growth in gas consumption in the Middle Atlantic states of New York, New Jersey and Pennsylvania over the time period of 2004-2030.

Source: U.S. Energy Information Administration, "2007 Annual Energy Outlook"

EIA's PROJECTED GROWTH IN NEW ENGLAND GAS CONSUMPTION TO 2030

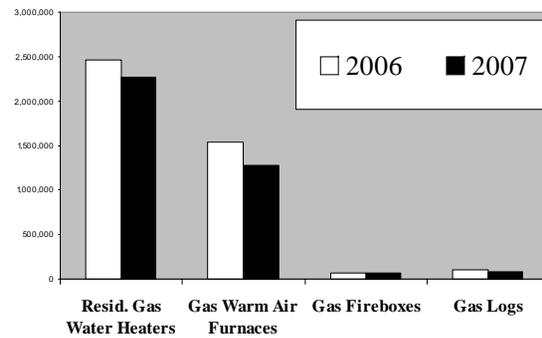
EIA's 2007 projection forecasts 1.3% annual growth in gas consumption in New England over the time period of 2004-2030. Natural gas demand for the region is projected to grow by 25% in the period from 2005 to 2021, from approx. 750 Bcf annually in 2005 to approx. 1 Tcf in 2017.



Source: U.S. Energy Information Administration, "2007 Annual Energy Outlook"

GAS APPLIANCES

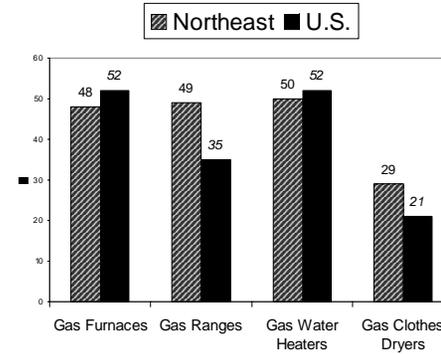
Selected Major Gas Appliances Sales, 2006-2007



GAMA reports annual and quarterly comparisons of major gas appliance sales, shown here for the first six months of 2006 and 2007. The slowdown in 2007 orders likely reflects the slowing U.S. housing market. Industry projections look for steady growth, especially in the relatively new market sectors of decorative gas appliances and vented gas fireplace heaters.

Source: Gas Appliance Manufacturers Association, Inc. (GAMA), www.gamanet.org

Percentages of Gas Penetration in Home Appliances, 2005



Source: American Gas Association, "Gas Facts 2005"

Division Data Request DIV 8-11

Request:

Re: page 7, lines 9-12 of the direct testimony of witness Mongan, please:

- a. Provide examples of the broad based advertising and promotional activities that heating oil providers serving Rhode Island have undertaken either individually or collectively within the last 12 months with which the Company has difficulty competing;
- b. Provide evidence of changes in natural gas and heating oil market shares in recent years that the Company would rely upon to support its asserted “difficulty” in competing with the broad-based advertising and promotional activities of heating oil providers.

Response:

a. The Company’s information is that the oil-heating industry is planning several multi-faceted advertising campaigns. Attachments DIV-8-11(a) through (f) are examples of the “broad-based advertising and promotional” activities undertaken by the oil-heat industry, including newsletters published by the OilHeat Institute of Rhode Island describing the approach and plans. Much of this advertising is separate from the advertising undertaken by the National OilHeat Research Alliance. Attachment DIV-8-11(f) is a 2008 request for \$148,000 for advertising funds from NORA for the OilHeat Institute of Rhode Island. This request covers only media expense, because NORA bears the national common costs of advertising agency fees.

b. The Company is not claiming that it is losing market share to heating oil. The Company’s reference to the “difficulty” in competing with heating oil providers broad based advertising and promotional activities was in reference to the Company’s relative disadvantage under the current framework to communicate with potential conversion customers about the safety and affordability of natural gas service. The Company’s main objective in implementing the customer outreach portion of the Gas Marketing Program is to have an equal opportunity to educate customers about the costs and benefits of gas service as a possible heating alternative when replacement heating equipment is needed. Customers will be better situated to make fully informed decisions, with accurate and comprehensive information on natural gas service as a heating alternative.



June 10, 2008

IN THIS ISSUE

- ⇒ **Providence Waterfront Fight**
- ⇒ **Education & Seminars**
- ⇒ **Golf Tournament**
- ⇒ **Advertising**



OIL STORAGE TESTIMONY GIVEN IN PROVIDENCE

The City of Providence began four days of hearings called charrettes yesterday, focusing on the industrial waterfront along the Allens Avenue corridor. The Energy Resources section was held yesterday morning. Sprague Energy and Motiva each had a twenty-minute segment, as well as OHI.



Mike Januario, OHI President and President of Sunshine Oil; Doug Foster representing Petro; and Brud Waterman, a Providence resident himself and Operations Manager for White Fuel (a Providence-based company), spoke after I (Julie) gave the Oil Heat Institute testimony. They each did a wonderful job. In addition, Nick Micheletti, OHI's immediate past president and President of Micheletti Fuel; Steve White from John F. White & Co., and Mike Trask from Trask Petroleum and Hall-Trask came in support. Thank you to everyone who came.

Several significant items to note: The Coastal Resources Management Council (CRMC) stated that the agency will not change the Type 6 water designation for a single hotel project and that they prefer maintaining a working waterfront. The State of Rhode Island must give final approval to any zoning changes requested by the City of Providence, and various state agencies, like the CRMC, must sign onto the plan in order for it to go forward.

The city's own consultant was agreeing with the Providence Working Waterfront Alliance, of which OHI is a member, that Providence should expand marine industrial businesses in the area and that, at present, there is a weak market for condos or office space.

These are great victories for protecting our tank farms.

EDUCATION & SEMINARS UPDATE

Technical Training for Non-Technical People Seminar

This all-day seminar is scheduled for Thursday, June 26, from 9am to 4pm at New England Tech. A number of you indicated that you want to send people to this seminar, but you have not completed the registration form. In order to register, you need to submit the registration form. If you have misplaced the form, it is available on our website (www.oilheatinri.com) or you call the office to have one sent to you.

160-HOUR BASIC OILHEAT TECH COURSE

A 160-hour Basic Evening course is scheduled to begin on August 4th. See the registration form for further information. We reserve the right to cancel the course for lack of registrants. Go to: www.oilheatinri.com to download the registration form or call our office.

DOT SEMINAR

OHI held an excellent seminar last Friday, June 6th, on DOT requirements. The first session was conducted by two people from DOT with regard to company audits and hazmat regulations. The second session was conducted by a RI state trooper, who gave tips on how to avoid fines and having vehicles taken out of service. Everyone who attended this seminar came away armed with information to protect their companies from DOT fines. Even the most knowledgeable attendees learned something they didn't know before.

WALL STREET'S BLACK FRIDAY

The US government formed an inter-agency task force today to investigate soaring energy prices. The task force consists of: the CFTC, the SEC, the Federal Reserve, and the Departments of the Treasury, Energy and Agriculture.

Financial institutions in our country are estimated as having \$260 billion invested in energy commodities today as opposed to only \$13 billion in 2002. Our message is getting out because Americans are increasingly blaming speculators for the increase in energy prices and many are blaming Congress for not stopping it. As bad as last Friday was, more and more media are pointing to speculation, not supply and demand, as the real reason behind the increases. *If you don't already know, natural gas commodities have risen 69 percent in the past 90 days.*

Our public relations group is continuing to aggressively call attention to the real reasons behind these increases in prices and what should be done to stop it. We are also continuing to talk to Congress about closing the foreign markets loophole and making the case against index investors participating on the commodities market.

GOLF TOURNAMENT



When I sent out the last Newsflash, the OHI had only 48 of the required 100 golfers. I am very pleased to tell you that we ended up with 106 golfers that day. In addition, we had more people attend the dinner than we have ever had before—141. I'm afraid that the revenues for our association were way down, but on a happier note, we were able to give the family a check for \$5,000. They also received an additional \$605 from the betting holes revenue. Several oil dealers also gave checks to the family. We wish Cory Sousa good health and pray for his recovery.

We were able to have this event and help this family because of you. People in this industry are so willing to sacrifice and give. This year in particular is a wonderful example because, for many of you, it was out of your want and not your excess. You are so generous, and I feel fortunate to know and work with you.

Thank you to Kathy Trask for volunteering and taking pictures and to Mary and Annie Iacono who volunteered to assemble the booklets and put the signs together, among other chores.

ADVERTISING

OHI ordered 50,000 envelope stuffers, "The Top Ten Reasons Families Choose Oilheat", and they are almost all gone. A mailing will be going out this week in the hopes that more companies will participate in this program. *We want your customers to remain oilheating customers.* The price of these brochures was kept low so that more companies could purchase them. We are selling them for just 9 cents apiece for members and 11 cents for nonmembers.

NEW MEMBER WELCOME

We would like to welcome our newest member, Western Oil. They will have the designation of Associate Member—Service Provider.



OHI News in a Flash

May 16, 2008

IN THIS ISSUE

- ⇒ **Washington Trip**
- ⇒ **Education & Seminars**
- ⇒ **Golf Tournament**
- ⇒ **Advertising**



WASHINGTON TRIP

OHI representatives went to Washington yesterday for the annual “Day on the Hill.” We were able to meet with all of our state’s congressional offices. Everyone who attended was pleased with the positive responses we received. The oil dealers began by explaining how the energy crisis is affecting their businesses and customers.



Other issues we addressed were:

How to Lower Energy Prices—Now that the Enron Loophole is likely to become law, we still need the foreign markets loophole closed. We also asked them to look into increasing margin requirements for investors who are not physical traders; in other words, who cannot take physical possession of the commodity. We also told them that we would prefer that non-commercial traders not be allowed to invest in commodities as an investment tool, period.

Nora—The reauthorization bill for Nora should be introduced into the House and Senate within the next two weeks. There has always been strong support for the bill, and we are hoping to get the legislation passed in the current Congress. Senator Jack Reed and possibly Senator Olympia Snowe will introduce the legislation on the Senate side. We explained that Nora has been a pioneer in the Research and Development of more efficient heating technologies and Bioheat.

We also explained that Rhode Island had a shortage of oilheat technicians before Nora began and that, because of Nora, our technical education programs have helped to eliminate the shortage and that it provides oilheat technicians with on-going training. All of our congressmen indicated that they are favorable to signing on as co-sponsors and will be looking into it.

LIHEAP—We again asked for full funding of LIHEAP, which all of our congressmen support anyway. We also requested that something be put into the law to discourage states from imposing margin over rack and why it is detrimental not only to dealers (who have been having to drop out of the program because they can’t afford it) but also harming the very consumers they are trying to help and why.

The group was able to meet with staff from all of the offices and were also able to have brief meetings with Congressman Langevin and Senator Whitehouse.

In addition to our conversations, we gave them eleven issue briefs about related issues. Those who attended the meetings were: Louise Giguere LeBlanc from Giguere & Marchand Oil Service; Mike Januario from Sunshine Oil; Dennis Brennan from Brennan Oil; Hilda and Vic Alianello, Jr. from East Providence Fuel Oil; and me, Julie Gill, Executive Director of OHI. I thank all of them for a job well done and for representing our industry in a way that should make us proud.

EDUCATION & SEMINARS

160-Hour Basic Oilheat Tech Course

There is still room in the day course which runs from June 2, 2008—June 27, 2008. The course will be held at New England Tech from Monday through Friday from 8am to 4:30pm. We are accepting registrations for the Basic evening course that begins on Monday, August 4th.

Seminars

Technical Training for Non-Technical People—this seminar is scheduled for Thursday, June 26th from 9am-4pm. Many dealers said they wished to send people but have not completed the registration form. The class is already half full, so if you have not already done so, please send in your registration soon to insure a spot in the class.

DOT Seminar—You should have received a notice today regarding a DOT seminar that has been scheduled to assist you in knowing what you need in the event of a DOT audit. We expect this seminar to be heavily attended so sign up soon to reserve a spot. The seminar is limited to 75 people.

GOLF TOURNAMENT

For those of you who were not at the Annual Board of Director's meeting on Tuesday night, a discussion took place about the poor response to date for this year's tournament. Several ideas came out of that discussion and one decision. The decision was this: that the Oil Heat Institute would give the family \$5,000, even if the revenues do not match that amount.

Louise Giguere LeBlanc from Giguere & Marchand Oil Service had the idea of using the golf tournament as a tool to thank big customers, who have been faithful customers for years and who like to golf, and to give them the gift of a foursome to show them appreciation.

Many of the members in attendance committed themselves to looking for sponsors and golfers. A disappointing response then turned into a cause for hope. As of today, we have 48 golfers. We are required to have 100.

ADVERTISING

The Advertising Committee met twice this month, with the committee deciding to run ads during traffic reports for twelve weeks, beginning as soon as possible. The committee also decided to again purchase two Cox ESPN Monday Night Football packages, with the opportunity for oil dealers to purchase ads, as well. It was decided to hold off spending the remainder of the 2008 funds in case something unexpected occurs, and we want to change anything. The ads continue to run on WJAR, Channel 10, Weather Plus and the banner ads on the Turn to Ten website.

On Monday, you should be receiving a sample of the "The Top Ten Reasons Families Choose Oilheat" envelope stuffer, along with an order form for those who have not yet ordered them. We will have the brochures ready in time for your monthly statements—but don't stop there. Give them to your drivers and heating technicians to leave with your customers.

At the beginning of the week, I will be writing an op-ed piece regarding the less-than-truthful advertising practices by National Grid. When the piece is completed, I will be submitting it to the Board for their input and suggestions. We need to clear up their "inaccuracies" with whatever means we have.

The plan is threefold: advertise on television and radio, get the envelope stuffers out to everyone and anyone, and to respond in the media.

NEW MEMBER WELCOME

We would like to welcome our newest member, Tiger Processing, a credit card processing company. They will have the designation of Associate Member—Professional Services designation.



OHI News in a Flash

- ⇒ ***Golf Tournament***
- ⇒ ***Advertising***
- ⇒ ***Education Update***
- ⇒ ***Washington Trip***
- ⇒ ***Board of Directors Meeting***
- ⇒ ***Known by Any Other Name***
- ⇒ ***Legislative***

May 2, 2008



GOLF TOURNAMENT

Charitable Recipient

Cory Sousa, the 19-year-old young man who has been chosen to be this year’s recipient, is home from the hospital. He is on oxygen and cannot leave his home in order to protect him from illnesses. The family has staggering bills since Cory has no health insurance. Even though it has been a difficult year for everyone financially, it has been even more difficult for Cory and his family. If you have not already sent in a registration and sponsor form for the golf tournament, please consider doing it today. I have had very little response as of this date.

Hall of Fame Recipient

We are very proud to announce that our 2008 Hall of Fame award will go to **Carl Benker** from Woods Heating Service. Carl truly deserves this award, and we are grateful for everything he has done for the industry and for OHI. Congratulations, Carl!

If you did not receive information about the golf tournament or have misplaced it, you can go to our website and click on Upcoming Events. All the forms are available there, or you can call me at (401) 464-8000, and I will see that you get the information. www.oilheatinri.com

ADVERTISING COMMITTEE

The Advertising Committee met on Tuesday, April 29th and is meeting again next Monday, May 5th. We are in the process of putting together an envelope stuffer that dealers can send with statements and mailings and to also have their oil drivers and technicians give to customers during deliveries and their annual tune-up. The piece will probably be entitled something like, “Why Oilheat is Still Your Best Value.” We are working to get the piece available as soon as possible, hopefully by the end of this month. We are also looking at our advertising options and will probably do some radio advertising soon. We will keep you updated on our plans and progress.

EDUCATION UPDATE

160-Hour Basic Oilheat Tech Course

A registration form is attached to this Newsflash. There is a day course beginning June 2nd and an evening course scheduled to begin on August 4th. See the registration form for further information.

NEW MEMBER WELCOMED

The OHI welcomes SAVARD OIL as a new Oil Dealer Member.

WASHINGTON TRIP

This year's "Day on the Hill" will be held on Thursday, May 15th. Our delegation will meet with Senators Reed and Whitehouse, and Congressmen Langevin and Kennedy or their staff on that day. Some of the items that will be addressed at the meeting are: the impact that the high cost of petroleum products is having on oil dealers and their customers; the Close the Enron Loophole legislation, if it has not already passed; increasing margin requirements; changing the Strategic Petroleum Reserve release requirements; and LIHEAP. The OHI group that will be meeting with our federal legislators are: Louise Giguere LeBlanc from Giguere & Marchand Oil; Vic Allienello, Jr. from East Providence Fuel Oil and OHI legislative liaison; Mike Januario from Sunshine Oil from Bristol and OHI Vice President; and Julie Gill from OHI.

ANNUAL BOARD OF DIRECTORS MEETING

The Annual Board of Directors meeting will be held on Tuesday, May 13, 2008 at Chelo's on the Waterfront on Masthead Drive in Warwick. There will be drinks, crackers and cheese from 6 to 6:30pm (cash bar). The meeting and dinner begin at 6:30pm. We are asking our voting members (oil dealers and wholesale marketers) to attend this meeting if at all possible. We would like to have ALL of our membership attend the meeting. Once the meeting has ended, the rest of the evening will be for socializing. I want to particularly invite our newer members to come. You are welcome, and we want you to participate. This is your association. The Bi-Annual election of officers and the Board of Directors will take place at the meeting. The new officers and Board will start their terms on June 1, 2008.

KNOWN BY ANY OTHER NAME

The legal name of the association that is on file with the Secretary of State's office is: Oil Heat Institute, Inc. Neither our name nor our old logo contained the words "Rhode Island" on them. That was fine in the past when most of the work OHI did was within the state. That has since changed dramatically, and we are heavily involved with other associations working jointly on both public relations issues and federal legislative issues. When we were asked to put our logo on a website or letter with other associations, it was a waste of time because it didn't say where we were from. We recently resolved that problem when we got our new logo—the logo at the head of this Newsflash. Our graphics designer recommended that we make oil heat into one word: oilheat, which goes along with NORA's use of the term. Therefore, we are now using a logo that says: "Oilheat Institute of Rhode Island."

Rather than incur the expense of changing the name of our association, the easiest thing to do was to file a fictitious name statement with the State. This week I went to the Secretary of State's office and added "Oilheat Institute of Rhode Island" and "OHI" as legal names of our association. We are now legally known by any of these three names.

LEGISLATIVE



Federal—The House and Senate have finalized the language on the farm bill, which contains the "Close the Enron Loophole" language. There were separate versions of the Enron Loophole language, one of which was stronger than the other. We are happy that the stronger language in the bill has been adopted. It is likely that this legislation will pass. It is very possible that the President will veto the bill, but it is thought that there is enough support for the bill to override a veto. So it's a wait and see situation at present

State—Trucking issues were heard yesterday at the State House, where our attorney/lobbyist, Terry Martiesian testified. Terry told me that yesterday alone, they stopped ten trucks and assessed more than \$36,000 in fines. The rules for both the Pawtucket Bridge and the Sakonnet River Bridge are as follows: no trucks over 22 tons are allowed; no trucks with more than two axles are allowed unless empty and under 22 tons.



OHI NEWS IN A FLASH

- ⇒ ***New Website is now Live***
- ⇒ ***Advertising***
- ⇒ ***Education Update***
- ⇒ ***Washington Trip***
- ⇒ ***Financial Symposium Information***
- ⇒ ***Golf Tournament***

April 16, 2008



NEW OHI WEBSITE IS NOW LIVE

I hope you like the new OHI website that went live last Thursday, April 10th. Go to: www.oilheatinri.com to check it out! Under the member dealers section, a consumer can enter the city/town in which they live and a list of dealers who serve the area will come up.

If you are looking for information on Upcoming Events or Educational Courses and Seminars, you can go directly to the website for information and registration forms. No need to go searching for those misplaced emails, faxes and mailings!

Do you have news you'd like to share with the oil heat community? Email it to me, and I will have it placed on the Member News Section. We also have a Classified Ads Section, where OHI members can place an ad for free. Nonmembers will be assessed a small fee.

We are looking for Website Sponsors. With the exception of equipment manufacturers, only members can sponsor the site. Preference will be given to members over nonmembers. The fee will be \$300 for three months and can include a link to your own website. Placement will occur based on response and will alternate every three months.

We are adding a "Dealer of the Month" to the home page based on a random drawing of the dealers. Each dealer will be able to use the space to tell consumers what you want them to know about your company. Again, you will be able to add a link to your own website if you have one.

The website is still a work in progress. The next area to be added will be a Legislative Action Section, with information about local and federal legislative efforts and what you can do to help your business.

ADVERTISING

OHI started a one-year Nora ad campaign on Channel 10 that began on April 1, 2008. We are currently using an ad we had in stock, but NORA will soon be doing a commercial. We will switch to using that commercial when it becomes available.

We understand that National Grid is starting an ad campaign that will directly target us. On Friday, I will be sending out an email and fax to our members to see if there is interest in putting together an ad campaign to take an offensive approach to their slander—yes, slander. When we join together in advertising placement, we can receive better rates than by individual companies advertising alone.

In addition to the Channel 10 ad campaign, www.turnto10.com will be showing our logo, along with "Is your dealer an OHI dealer?" banner. We will receive at least 40,000 impressions on their website per month.

To remove your name from our mailing list, please [click here](#).

Questions or comments? E-mail us at julie@ohi.necoxmail or call 401-464-8000

UNDERSTANDING ONE PIPE SYSTEMS—Thursday, April 24th, 12 Noon to 4pm
at New England Tech, Bob Plante, instructor

BASIC 160-HOUR OILHEAT TECH COURSE (DAYS)—June 2, 2008-June 27, 2008

BASIC 160-HOUR OILHEAT TECH COURSE (NIGHTS)—Aug. 8, 2008-Jan. 15, 2009

GOLF TOURNAMENT

Congratulations to Carl Benker, who will receive the 2008 Hall of Fame Award. Our charitable recipient this year is Cory Sousa. You can learn more about Cory by reading the newspaper article that is in the mailing and on the website. We know you will be as generous as possible in helping him. Many thanks to Federated Insurance for agreeing to be the Tournament Sponsor this year. The mailing went out today, so keep an eye out for it. By tomorrow you should also be able to access tournament information and forms on our website.

WASHINGTON TRIP

Several OHI members will be joining me in the annual “Day on the Hill” trip on Thursday, May 15, 2008. I am in the process of setting up appointments with our Federal legislators for the day in order to address those issues that are critical to our industry.

RESPONSES TO FINANCIAL SYMPOSIUM DVD Available Soon

Because the information given at our recent symposium is so valuable, we will be making the DVD available to all heating oil dealers. If you missed the symposium, this DVD is a must see.

The following are responses from two of the attendees at our symposium on Thursday, March 27.

Dennis Dougherty from Anchor Fuel in Middletown said, “The Financial Symposium that Roberta and I attended yesterday was extremely valuable to us. We are young company in the Rhode Island landscape of home heating fuel vendors and our business model is that of a COD dealer.

Everyday we strive to make the right and at sometimes difficult decisions that have enabled us to be a viable business. We were encouraged yesterday knowing that we are not alone in the struggle to keep our margin. Several of our peers, whom we met by joining OHI three years ago, gave me the valuable advice to “keep your margin!” At times we have to shoulder the fuel cost increases for the sake of our customers. I know now that I can not continue to “lend oil” at the risk of compromising the health of my small company and/or the health of myself, family and employees.

Roberta Fagan and I left the meeting yesterday feeling optimistic and invigorated. We recognize the “down time/off season” as the opportunity to scrutinize our business model, and our customer base, so that going into the 2008-2009 heating season we will be ready to be part of the energy crisis **solution**; not part of the problem!”

Mike Januario from Sunshine Oil in Bristol said, “I thought the speakers did a very good job discussing the pitfalls for not charging enough for the products and services we offer. The overall message to dealers is to know your costs and charge enough to make a profit. One common practice all the dealers were guilty of, which ran counter to the thinking, was that we all make small drops—in most cases as a way to control credit and keep people warm. I can’t tell you how many deliveries we have made of 30 or 40 gallons just to keep a customer warm and, at the same time, keep their balance manageable. Honestly I think this is the smaller company vs. the larger company thinking. All of the people in the room could put a face to their customer’s name. The one thing I found surprising was how some companies could view credit balances as an asset, although a large bank balance could give a false sense of security……. I thought the timing of the message was good.

THERE'S A BULLY IN TOWN

Few are they who have not known the personal experience of being bullied—someone who can do or say anything they want simply because they are bigger than you are. That is exactly what is happening to your neighborhood heating oil dealers. While the oil dealers and their customers are experiencing ever-increasing energy prices, National Grid has put out an aggressive ad campaign in an effort to get oilheating customers to convert to natural gas. I would like to challenge them to provide proof of their allegations against heating oil to the consuming public.

National Grid knows that they will soon have to go before the Public Utilities Commission to request an enormous rate increase. Natural gas is trading on the market at almost double what it was in May, 2007. They will have to pass that increase onto the consumer. They have recently asked the PUC for a 10% increase to cover a \$9 million deficit and an additional 4.6% on the distribution charge to pay for improvements to their infrastructure. Are they trying to keep it quiet so they can lure unsuspecting oilheat customers to a product that they are led to believe is less expensive and cleaner so that once they switch, it's too late?

Did you know that in Rhode Island, heating oil has been less expensive than natural gas for 19 out of the past 22 years? For many years, the oil industry has been developing new technologies to increase efficiency, reduce our carbon footprint and decrease consumption before it ever became popular to do so. In 1973, the average oil-heated home burned 1,294 gallons a year; today it is 833 gallons, a 35% reduction.

Energy Star oil-fired furnaces are available that are 95% efficient and boilers that are 93% efficient. Upgrading an older system can save up to 40% on fuel costs. By taking small steps with bioheat, a blend of heating oil with vegetable oil or animal fats, oil-heated systems will run even cleaner and reduce our dependence on foreign oil. Just a 5% blend of bioheat is as clean as natural gas for CO² emissions. The oil industry is taking it slowly because it is sensitive to increases in prices for agricultural products, but bio-heat is coming.

Residential heating oil equipment creates such a negligible amount of emissions that heating oil is not even regulated by the Federal Clean Air Act. If natural gas isn't a significant contributor to carbon dioxide emissions, why are the natural gas lobbyists fighting to change the way carbon dioxide emissions will be counted under the climate bill currently on the floor of the US Senate?

Unlike natural gas, heating oil is not explosive, and carbon monoxide poisoning from an oil-heated system is so rare that we do not know of a single instance of it anywhere in Rhode Island as far back as we can remember. Carbon monoxide is toxic; heating oil fumes are not. What natural gas does emit is methane, one of the most harmful greenhouse gases. According to the Intergovernmental Panel on Climate Change, methane emits 23 times the greenhouse gases that CO² does.

In fact, Quincy, MA and other communities are concerned that natural gas (methane) leaks are killing 60- or 70-year-old shade trees. Before the introduction of modern leak-detection equipment, natural gas workers were told to look for dying vegetation as a sign of a low-level gas leak. (*Are Gas Leaks Killing Trees?* Robert Knox, Boston Globe, Dec. 13, 2007)

When the weather gets bitterly cold, the gas company cannot keep up with demand. They tell large users who heat with natural gas that they are shutting them off and to switch to their alternative fuel—oil. If National Grid does not have enough infrastructure and product to supply the customers they have now, how will they supply more? Is this the reason they are pushing for new LNG terminals in our area? Finally, most heating oil dealers are owned by families—some of them second or third generation. They know and care about their customers. They live in the same neighborhoods and give back to the community they share together. When you need them, a full service oil dealer is available 24 hours a day. National Grid cannot say the same.

Is converting to natural gas a smart decision, or do consumers need to do a little research before throwing good money away?

Julie A. Gill
Executive Director
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www.oilheatinri.com



RHODE ISLAND GRANT APPLICATION

TO: John Huber, President
National Oilheat Research Alliance (NORA)

FROM: Julie A. Gill, Executive Director
Oil Heat Institute, Inc. of Rhode Island

SUBJECT: 2008 funding under provision of
National Oilheat Research Alliance (NORA) Law

DATE: February 15, 2008

NORA has indicated the estimated allocation of funds for the Oil Heat Institute, Inc. of Rhode Island is \$327,999.73, for the grant year of 2008; the Oil Heat Institute, Inc. is herewith submitting its Grants application.

As for the 2008 grants Application the Oil Heat Institute, Inc. is proposing to divide these funds into parts as follows:

A.	Consumer Education	53.3%	\$148,000.00
B.	Education & Training	45.7%	\$182,999.73
C.	R & D	0.0%	<u>0.000.00</u>
	Total		<u>\$327,999.73</u>

A. Consumer Education:

The Oil Heat Institute, Inc. will use \$148,000.00 on television, radio, and outreach to building trades as described below.

1) Television & Radio Advertising Campaign: \$126,000.00

The Oil Heat Institute, Inc. is proposing to set aside \$20,000 for advertising on ESPN Monday Night Football if available

The Oil Heat Institute, Inc. is also proposing to spend \$106,000 for purchase of media time and other related expenses within the network media markets that serve Rhode Island, possibly using JL Media. The Oil Heat Institute, Inc. wishes to see the new Nora creative before deciding on radio/television advertising decisions

Media Expenditure \$126,000

2) Print & Website Media

The Oil Heat Institute, Inc. would like to set aside \$20,000 for use of print & website media (including subscriptions to Oilheat Magazine)

Print & Website Media \$20,000

3) Builders Association Function

The Oil Heat Institute, Inc. proposes to run a second builders association function. The function held in 2007 was highly successful, and we wish to further our relationship with them.

Builders Association Seminar \$2,000.00

Total Consumer Education \$ 148,000.00

B) Education & Training: \$ 183,000.00

1.) Conduct 2 Basic Oilheat Tech Courses **\$ 100,000.00**

NEFI 160-hour course
Required for RI basic licensing

2.) Advanced oilheat tech course **\$ 30,000.00**

Course is required to test for second and third level of Rhode Island licensing (Pipefitter II and Master Pipefitter)
The Oil Heat Institute, Inc. will use \$25,550 of 2005 funds for a course expected to cost approximately \$30,000
This covers total cost for up to 20 students.

3.) Conduct 50 Hour Electrical Course **\$ 25,000.00**

Course will assist students in passing state licensing exams

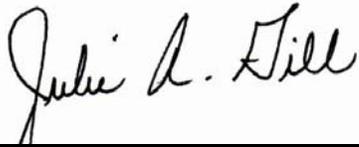
4.) Conduct various seminars for Nora CEU's & other
needed educational requirements \$ 27,999.73

Total Education & Training \$ 182,999.73

C) R & D \$.00

**Note: Grant Administration costs have been included in above totals
and will not exceed the three percent cap.**

TOTAL GRANT EXPENDITURE (148,000+182,999.73+.00)



Julie A. Gill, Executive Director
Oil Heat Institute, Inc. of Rhode Island

February 15, 2008

Date

Division Data Request DIV 8-12

Request:

Re: page 7, lines 12-14 of the direct testimony of witness Mongan, please:

- a. Provide documentation to support the Company's finding that "customers often are relatively uninformed about the safety and affordability of natural gas service";
- b. Provide all information available to the Company regarding the numbers of residences damaged and numbers of persons killed or injured by natural gas explosions in Rhode Island within the last 10 years;
- c. Provide all information available to the Company regarding the numbers of residences damaged and numbers of persons killed or injured by heating oil explosions or fires in Rhode Island within the last 10 years;
- d. Provide all information available to the Company regarding the numbers of residences damaged and numbers of persons killed or injured by natural gas explosions in Rhode Island within the last 10 years;
- e. Provide all data, studies and analyses available to the Company regarding changes over the last five years in the relative costs of space heating with natural gas and space heating using fuel oil;
- f. Provide all data, studies and analyses available to the Company regarding changes over the last five years in the relative costs of domestic water heating with natural gas and domestic water heating using fuel oil.

Response:

a. Please see Attachment DIV-8-12(a)(1), which provides a complete copy of a study entitled "Oil and Natural Gas Advertising Awareness." National Grid regularly conducts, or contracts for, surveys of potential customers and new customers to evaluate their attitudes toward the Company's service offerings as well as their satisfaction with those services. The survey provided in Attachment DIV-8-12(a)(1) was completed in October 2003 and was designed to study attitudes in several geographic areas surrounding Rhode Island.

In the Company's experience, it is a basic tenet of retail business that successful service companies must be able to effectively communicate with their potential customers at regular intervals regarding the attributes of their products and services if, for no other reason, than to counter obvious misconceptions that otherwise become prevalent. The low levels of customer awareness shown on page (3) combined with the resulting attitudes on page (6) clearly indicated a greater need to communicate with customers at that time. For example, page (6) indicates that substantially more potential customers believed that oil deliveries by truck were more reliable than gas service that arrives automatically by pipeline, a contention not supportable by any fact.

The results of this study and others similar studies also demonstrate that awareness of the attributes of the Company's products and services must be continually maintained or an erosion of interest occurs, especially when competing energy services are engaged in outreach as concluded on page (18). This trend is also demonstrated by referring to the data on page (7). This chart compares the attitudes of potential customers in 2003 with their opinions in 2000. In just a three-year period, the changes in attitude are substantial in some areas. A review of activity at that time shows a minor decline in gas-utility outreach during this period. However, this was the same period that the National Oilheat Research Alliance(NORA), ramped up its national "Putting Clean and Heat together" campaign primarily with radio and TV advertising throughout the Northeast, while gas advertising continued its primary reliance on direct-mail. Attachment DIV-8-12(a)(2) provides a sample of NORA advertising from that time. NORA's public reports previously indicated a peak in funding for "Consumer Education" in 2004 with 2003 grants exceeding \$10.7 Million.

Later studies have shown a recovery in awareness among potential customers, especially in New England, and, as a direct result, potential customers are better prepared to make fully informed energy choices.

b. Attachment DIV-8-12(b)(1) provides a listing of the natural gas incidents reported by the Company to USDOT since 1998 in accordance with federal pipeline safety regulations. In addition, please see Attachment DIV-8-12(b)(2), which is a report by the National Fire Protection Association (NFPA) based on data compiled by the National Fire Information Reporting Service (NFIRS). The data published by NFPA indicates an overall national trend toward reductions in home structure fires due to heating systems, which today represent only about 19% of home fires nationally. Please note that National Grid does not assert a safety advantage of natural gas as compared to fuel oil despite the existence of safety features unique to natural gas service, such as the use of odorant.

- c. The Company does not compile this type of information.
- d. Please see the Company's response to item (b), above.

e. The table below compares the actual effective unit cost of natural gas service compared with typical heating oil prices. These prices are for standard retail heating oil sales. Several factors affect actual oil prices including the size of the order, length of the contract or other services embedded in the price.

12- Months Ended:	Total Billed Revenue @ Actual Volumes(\$/DTH)		GCR rate/DTH Peak Season [\$/DTH]	Typical Fuel Oil Price [\$/gal.]	Typical Fuel Oil Price Equivalent to Gas [\$/DTH]
	Residential Heating	Residential non-heat			
Apr-2008	\$16.08	\$20.23	\$10.84	\$2.63	\$18.89
Apr-2007	\$16.37	\$21.02	\$10.48	\$1.97	\$14.19
Apr-2006	\$16.37	\$20.42	\$11.97	\$1.93	\$13.86
Apr-2005	\$13.50	\$19.22	\$8.79	\$1.47	\$10.56

Notes: Total billed revenue includes customer charge, variable distribution charge, distribution adjustment charge(DAC), gas cost recovery or gas commodity (GCR) portion and Energy Efficiency surcharge

According to the Energy Information Administration in 2006, a homeowner uses 800-1,250 gallons/year of oil or between 111 and 174 Dth of natural gas for heat and hot water.

The GCR rate is the actual rate approved in November of each year. In a couple of years shown, adjustments were made going into the summer months.

f. The unit cost of water heating with natural gas, where there is no gas heating, is estimated in the table above. Where gas is used for heating, the cost of hot water heating can be considered to be the average effective rate for the customer (as shown above) or it could be assumed to be the tailblock rate posted in the rate tariffs, which is lower than the average price. For purposes of a conversion to water heating only, a typical single family residence uses approximately 25 Dth of gas or 4,700 kWh for a relatively new electric water heater. Current Rhode Island residential electric rates exceed \$0.14 per kWh. During the last (5) years the Standard Offer Electric supply rate has varied from \$0.055 to the current \$0.092 per kWh.

Oil and Natural Gas Advertising Awareness

Strategic Marketing Services and Metrics

Ted Everitt

October 2003

Background/Objectives: A study was conducted among NY, LI, and NE residential homeowners to determine:

- Advertising Awareness of Oil and Natural Gas and sources of Awareness
- Performance of Oil and Natural Gas on a series of indicators
- Believability of current Oil Advertising Statements
- Consideration of converting home to Natural Gas in the next 2 years
- Opinions on Gas and Oil Pricing

Methodology: 300 Telephone interviews were conducted with oil heat customers during the period September 22, 2003 - October 5, 2003.

- 100 in NY (low use)
- 100 in LI (low use and near the main in Nassau county)
- 100 in NE (low use and prospects)

Have you seen or heard any fuel oil/natural gas advertising in the past month?

		Total	NY	LI	NE
		%	%	%	%
Oil	Yes	27	18	32	30
	No	73	82	68	70
Gas	Yes	30	28	26	37
	No	70	72	74	63

Do you recall who sponsored the ad?

Oil Ad Sponsor

	%
Specific Oil Company	25
Oil Heat Institute	19
Other	14
Nat'l Oil Heat Rsch. Alliance	2
Don't Recall	46

Gas Ad Sponsor

	%
KeySpan	55
LILCO/LIPA	4
Boston Gas	2
Don't Recall	40

Where did you see/hear the advertisement?

	Total		NY		LI		NE	
	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas
	%	%	%	%	%	%	%	%
Television	38	38	33	19	42	35	37	54
Newspaper	30	13	17	15	27	19	40	8
Radio	19	23	28	26	15	35	17	14
Mail	11	31	17	37	3	27	17	30
Other	10	2	6	4	18	-	3	3
Billboards	5	-	6	-	6	-	3	-
Signs	4	1	6	-	3	-	3	1
Subway/Bus/Railroad	2	-	-	-	2	-	-	-
Trucks	1	-	-	-	1	-	-	-
Bill Insert	1	-	1	-	-	-	-	-

Which fuel performs better for each attribute? (Among all Respondents)

	Oil Performs Better	They Perform the Same	Gas Performs Better	Don't Know
	%	%	%	%
Safety of fuel	62	20	6	11
A lower priced fuel	51	17	9	24
Convenience of fuel delivery	39	16	34	11
Reliability of fuel delivery	37	24	27	12
Equipment maintenance cost	36	23	17	24
Stability of fuel price	34	28	16	22
Cleanliness of fuel	22	14	53	10

Which fuel performs better for each attribute?

	<i>Performs better</i>	Total	NY	LI	NE
		%	%	%	%
Safety of fuel	Oil	62	57 33	56 44	72
	Gas	6	7 30	10 17	2
A lower priced fuel	Oil	51	52 33	50 34	50
	Gas	9	4 18	9 18	13
Convenience of fuel delivery	Oil	39	45 7	38 4	35
	Gas	34	35 72	38 74	31
Reliability of fuel delivery	Oil	37	40 8	38 4	35
	Gas	27	26 66	32 66	23
Equipment maintenance cost	Oil	36	46 15	34 11	28
	Gas	17	12 35	20 35	20
Stability of fuel price	Oil	34	35 16	35 10	33
	Gas	16	11 41	20 44	16
Cleanliness of fuel	Oil	22	24 3	24 1	19
	Gas	53	48 86	55 91	55

Note: Red percentages (%) are the results from a study among inquirers of conversion during the Winter of 2000.

How much do you believe the statement... (Among all Respondents)

	Believe Statement	Neutral	Don't Know	Do Not Believe Statement
	%	%	%	%
Oil heat costs are easy to understand	67	14	6	12
Oil heat is 100% warm	62	19	10	9
Oil heat is easier on your family's finances	49	21	12	18
Oil heat upgrades cost less than gas conversions	35	22	27	17
Oil heat is 99.9% clean	32	29	6	33
Oil heat is clean and good for the environment	26	33	9	32

How much do you believe the statement... (Among % believing statement)

	Total	NY	LI	NE
	%	%	%	%
Oil heat costs are easy to understand	67	70	61	69
Oil heat is 100% warm	62	78	48	62
Oil heat is easier on your family's finances	49	57	45	47
Oil heat upgrades cost less than gas conversions	35	45	32	28
Oil heat is 99.9% clean	32	37	28	33
Oil heat is clean and good for the environment	26	34	19	25

Which phrase best describes your opinion on Oil and Natural Gas pricing?

	Total %	NY %	LI %	NE %
Oil is more expensive	13	10	17	13
a little more	5	6	3	5
a moderate amount more	5	3	8	6
a lot more	2	1	5	1
Gas is more expensive	37	43	35	34
a little more	12	17	12	6
a moderate amount more	13	9	14	17
a lot more	10	12	8	9
They are about the same	34	36	31	36
Don't Know	16	11	18	18

To what degree would you consider converting your home to natural gas heat in the next two years?

	Total	NY	LI	NE
	%	%	%	%
Definitely/Probably would	20	23	24	14
Definitely/Probably would not	78	74	75	86
Don't Know/Not Sure	1	2	1	-

Those who would Definitely/probably consider converting tend to have the following characteristics:

Time in home: 5 or less years... 42% Definitely/Probably would consider converting their home

Age: Less than 65 years

Older heating systems: 11 or more years old

How old is your current heating system?

	Total	NY	LI	NE
	%	%	%	%
2 or less years	13	12	12	15
3 - 5 years	16	15	19	15
6 - 10 years	22	22	25	18
11 - 15 years	12	9	10	15
16 - 20 years	10	8	10	10
21 or more years	27	33	23	26

Half of the market has "younger" equipment (10 years or less)

The other half of the market has older equipment (11+ years) and report they are more likely to convert (25% versus 14%)

How many years have you lived in your current home?

	Total	NY	LI	NE
	%	%	%	%
2 or less years	4	3	7	2
3 - 5 years	11	13	9	10
6 - 10 years	14	17	13	11
11 - 15 years	11	5	12	15
16 - 20 years	11	13	4	15
21 or more years	51	49	55	47

15% of the market are "new" to their home (within 5 years)... 42% of them would consider converting their home

Of the remaining 85% (6+ years in current home), only 17% would consider converting their home

Respondent Age

	Total	NY	LI	NE
	%	%	%	%
Under 35 years	5	5	6	3
35 - 44 years	20	17	22	20
45 - 64 years	45	46	40	49
65 or more years	30	31	31	28

70% of the market is under 65 years; 25% of them would consider converting

Of the remaining 30% (age of 65+ years), only 10% would consider converting their home

Employment

	Total	NY	LI	NE
	%	%	%	%
Work full time	43	51	41	37
Retired	32	38	31	27
Self-employed	9	2	12	12
Work part time	7	1	5	15
Homemaker	6	3	7	7
Not employed/ student	3	4	3	2

Conclusions and Implications

- Among oil heat customers, awareness of gas and oil advertising is relatively equal
- Among advertising aware customers:
 - KeySpan brand recognition is strong
 - Oil advertising (brand/sponsorship) is weak
- Among oil heat customers (in comparison to gas), oil heat has a dominance for all product attributes except “cleanliness of fuel”

Conclusions and Implications

- Believability of recent oil advertising claims shows mixed opinions among oil heat customers:
 - *Oil heat is 100% warm:* 62% believe, 9% do not
 - *Oil heat is 99.9% clean:* 32% believe, 33% do not
 - *Oil is clean and good for the environment:* 26% believe, 32% do not
 - *Oil upgrades cost less than gas conversions:* 35% believe, 17% do not

Conclusions and Implications

- Among oil customers who are more positive toward a natural gas conversion, evidence of an erosion of natural gas image is noted for:
 - **Safety of fuel**
 - **Convenience of fuel delivery**
 - **Reliability of fuel delivery**
 - **Cleanliness of fuel**

Conclusions and Implications

Natural Gas and Oil Pricing (Among oil heat customers):

- 37% indicated that Natural Gas was more expensive than Oil (12% believing “a little more”)
- 13% indicated Oil was more expensive than Natural Gas
- 50% indicated they “are about the same” (34%) or “did not know” (16%)

Conclusions and Implications

- One in five current oil heat customers report that they are positive toward considering a natural gas conversion.
- More importantly, oil heat customers who are in their homes 5 years or less are over twice as likely to consider a natural gas conversion.



TRANSCRIPT

DATE: SEPTEMBER 1, 2003
TIME: 4:52 AM
STATION: WBZ-AM
LOCATION: BOSTON
PRODUCT: NATIONAL OILHEAT RESEARCH ALLIANCE
LENGTH: :60
CODE: 030900602

TITLE: PUTTING CLEAN AND HEAT TOGETHER

MALE ANNCR: This is clean. (CELTIC FLUTE MUSIC IN) Clean is light. Clean is pure. Clean is refined. (MUSIC OUT) This is heat. (LATIN MUSIC IN) Heat is depth. Heat is passion. You can feel heat right down to your toes. (MUSIC OUT) This is clean and heat put together. (CELTIC AND LATIN MUSIC TOGETHER) Welcome to today's oil heat: 99.9% clean 100% warm. Sponsored by the National Oilheat Research Alliance.
(MUSIC OUT)

###

US DOT INCIDENT REPORTS, RI, SINCE 1998

RPTID	OPID	Company Name	Incident Address	County	Class	Date	INJ	PRPTY	CAUSE
20000104	15896	PROVIDENCE GAS CO	56 PEMBROKE LANE	COVENTRY	3	20000518	0	\$250,000	OTHER
20000231	15896	PROVIDENCE GAS CO	833 835 JEFFERSON BLVD	WARWICK	4	20001103	0	\$0	OTHER
20030034	31770	NEW ENGLAND GAS COMPAN'	14 STELLA STREET	PROVIDENCE	3	20030209	0	\$100,000	DAMAGE BY OUTSIDE FORCES
20040012	31770	NEW ENGLAND GAS COMPAN'	130 TELL STREET	PROVIDENCE	3	20040203	2	\$18,000	DAMAGE BY OUTSIDE FORCES
20040019	31770	NEW ENGLAND GAS COMPAN'	196 ELDRIDGE STREET	CRANSTON	3	20040207	0	\$100,000	DAMAGE BY OUTSIDE FORCES

US DOT Requires a report if there is an incident resulting in death or overnight hospitalization or property damage (including lost gas) exceeding \$50k.

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[Home](#) > [Research & Reports](#) > [Fire statistics](#) > [Major causes of fire](#)

Major causes of fire

Leading causes of structure fires in homes 2002-2005 annual averages

"Homes" are defined as dwellings, duplexes, manufactured homes (mobile homes), apartments, rowhouses, townhouses, and condominiums.

Major cause	Fires	Civilian deaths	Civilian injuries	Direct property damage (in millions)*
Cooking equipment fire	142,900 (38%)	430 (15%)	4,600 (34%)	\$757 (13%)
<i>Cooking equipment in non-confined fire</i>	35,900 (10%)	420 (15%)	3,140 (23%)	\$728 (12%)
<i>Confined cooking fire</i>	107,000 (28%)	10 (0%)	1,460 (11%)	\$29 (0%)
Heating equipment fire	70,700 (19%)	690 (24%)	1,680 (13%)	\$1,061 (18%)
<i>Heating equipment in non-confined fire</i>	30,600 (8%)	690 (24%)	1,570 (12%)	\$1,041 (18%)
<i>Confined chimney or flue fire</i>	24,600 (7%)	0 (0%)	30 (0%)	\$15 (0%)
<i>Confined fuel burner or boiler fire</i>	15,500 (4%)	0 (0%)	90 (1%)	\$5 (0%)
Electrical distribution or lighting equipment	20,800 (6%)	330 (11%)	810 (6%)	\$697 (12%)
Intentional	18,300 (5%)	330 (11%)	960 (7%)	\$524 (9%)
Candle	15,800 (4%)	160 (6%)	1,480 (11%)	\$488 (8%)
Clothes dryer or washer	13,900 (4%)	30 (1%)	80 (1%)	\$319 (6%)
Smoking materials	13,300 (4%)	680 (24%)	1,220 (9%)	\$396 (7%)
Exposure	13,200 (3%)	20 (1%)	90 (1%)	\$332 (6%)
Playing with heat source	7,100 (2%)	140 (5%)	860 (6%)	\$220 (4%)
Confined or contained trash or rubbish fire	14,700 (4%)	0 (0%)	60 (0%)	\$3 (0%)

* Previously published estimates of candle fires were higher because the total number of homes was based on incidents reported in both versions of NFIRS.

Note: These are the leading causes, obtained from the following list: intentional (from the NFIRS field "cause"); playing with fire (from factor contributing to ignition); confined heating (including confined chimney and confined fuel burner or boiler fires), confined cooking, and contained trash or rubbish) from incident type; heating and cooking equipment in non-confined fire, clothes dryer or washer, torch (including burner and soldering iron), electrical distribution and lighting equipment, medical equipment, and electronic, office or entertainment equipment (from equipment involved in ignition); smoking materials, candles, lightning, and spontaneous combustion or chemical reaction (from heat source), and mobile property involved (from mobile property involved in ignition). The statistics on smoking materials and candles include a proportional share of fires in which the heat source was heat from an unclassified open flame or smoking material. Equipment statistics include a proportional share fires coded with no equipment involved in ignition but with heat source indicating equipment involvement or unknown heat source. Exposure fires include fires with an exposure number greater than zero, as

well as fires identified by heat source or factor contributing to ignition when no equipment was involved in ignition and the fires were not intentionally set. Because contained trash or rubbish fires are a scenario without causal information, they are shown at the bottom of the table if they account for at least 2% of the fires. Causal information is not routinely collected for these incidents. The same fire can be listed under multiple causes, based on multiple data elements. Details on handling of unknowns, partial unknowns, and other underspecified codes may be found in the Appendix.

These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million. Property damage has not been adjusted for inflation.

Source: NFIRS and NFPA survey.

Updated: 3/08

URL: <http://www.nfpa.org/itemDetail.asp?categoryID=952&itemID=23186&URL=Research%20%20Reports/Fire%20statistics/Major%20causes%20of%20fire>

NFPA (National Fire Protection Association)

1 Batterymarch Park, Quincy, MA 02169-7471 USA
Telephone: +1 617 770-3000 Fax: +1 617 770-0700

Division Data Request DIV 8-13

Request:

Re: page 7, lines 14-17 of the direct testimony of witness Mongan, please:

- a. Provide a detailed outline of what the Company would consider a “comprehensive customer education and outreach program” as well as the Company’s estimated costs of undertaking such a program.
- b. Given the growth in the cost differential between natural gas and heating oil in recent years, please explain why such a comprehensive customer education and outreach program is necessary at this time.

Response:

(a) The Company’s current plans for the comprehensive outreach to Rhode Island customers will include the following key elements, each of which will occur on an annual basis:

1. Collateral Development and Distribution
 - o Customer & trade brochures, equipment/rebate forms, sales fulfillment materials, and related literature (print and electronic versions);
 - o Distributed via Trade Reps, Inside Sales, Lead Intake, Events and Web.
2. Web Placements
 - o Search Ads - via Google, Yahoo, MSN, etc. Key words & locales optimized on a weekly basis.
 - o Banner Ads – Selective placements by territory, target audience, and market segment of sites.
3. Microsites
 - o CleanGasHeat.com - for incentive offer promotions
 - o Gas2001.com – online direct customer response mechanism
4. Customer Electronic Newsletter: “E-Action”
 - o Residential & Commercial Segments: Heating Contractors (monthly distribution) and Residential Customers (quarterly distribution).

The annual estimated cost of the residential outreach program for Rhode Island is \$448,000 and \$80,000 for the commercial outreach program.

The majority of the costs are devoted to outreach using direct mail. Attachments DIV-8-13(a) through (d) are samples of residential and commercial direct mail pieces planned for use in Rhode Island. The purpose of the mailer is to inform the prospective customer about the heating options that are available with natural gas service and to provide the customer with direct information, or references to sources of information, from which the customer can make an informed decision about heating their home. The information made available includes equipment and fuel pricing, equipment and efficiency options, details of the Company's incentive programs, as well as the environmental attributes of the natural gas service.

(b) The Company's implementation of the Gas Marketing Program does not hinge upon the cost differential between natural gas and heating oil because market prices for these commodities fluctuate freely based on a multitude of factors, including the relative supply and demand for each fuel, and the cost differential does not remain consistent over time. The Company does not ramp the program up or down to track these price fluctuations because (1) these price fluctuations are beyond the control of the Company, and (2) the effort to educate customers and facilitate gas conversions requires constant, reiterative communication and coordination. As a result, the cost efficiency of the program would be undermined if customer outreach efforts occurred on an inconsistent basis and unpredictable basis according to pricing fluctuations in the market. Also, please see the Company's responses to Data Requests DIV-8-12(a) and DIV-8-18.

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can have a
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**And up to a \$1,500 discount that'll
make your wallet happier, too.**

Contact us about converting to gas heat by 7/31/08 and you can save up to \$1,500 on new high efficiency heating equipment for every individual unit. Getting started is easy. Get a free, no-obligation estimate from a qualified installer. You can also qualify for service plans through our referred contractors.

Gas versus oil. Gas is so much better for you.

GAS	vs.	OIL
Reduces carbon dioxide by up to 40%. And sulphur dioxide by 100%.		Produces soot, fumes and greenhouse gases.
99% of natural gas comes from North America.		56% of oil is imported.
Perfect for heating, water heating, cooking, fireplaces, dryers.		Used only for heating.

Save the earth.

It's so easy to make a positive impact on Mother Earth. Simply convert to natural gas and you take out 3,300 pounds of carbon from the environment. That's like taking six cars off the street. Because natural gas is the cleanest-burning fossil fuel, your home will be free of soot, fumes and sulphur dioxide. Make your home cleaner, the world greener.

Save money.

Because natural gas is so much more efficient, you'll not only use less energy every month, your heating costs will be lower too. You can save as much as \$420 a year even when winters are severe. What's more, when you invest in a new gas heating system, you'll increase the value of your property by as much as \$8,400.

Save space.

Say good-bye to your old oil tank and clear out some extra space in your basement. Then put that space to good use for whatever you've been wishing for—a home theater, a gym or even extra storage space. We'll even help you remove your oil tank and donate the oil to keep another family warm.

Take action today.  gas2001.com/7074  1.800.GAS.2001 EXT. 7074  Mail in action form.

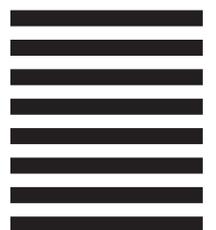
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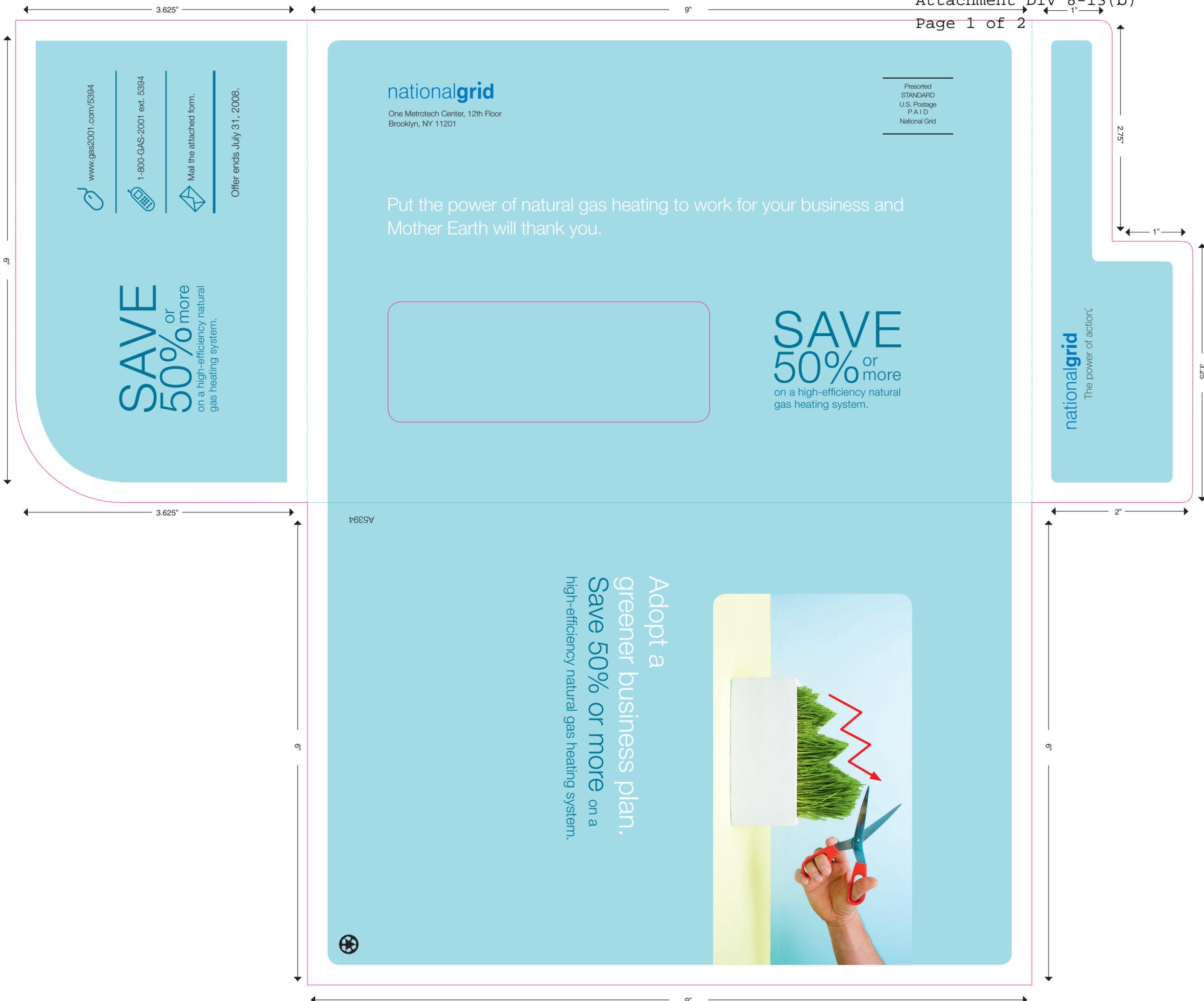
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www.gas2001.com/5394
1-800-GAS-2001 ext. 5394
Mail the attached form.
Offer ends July 31, 2008.

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Brooklyn, NY 11201

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on a high-efficiency natural gas heating system.

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Adopt a greener business plan.
Save 50% or more on a high-efficiency natural gas heating system.



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Date: 05/14/08

MULLEN
NG
NGD408-04612

VERSION: 4 DATE: 05-08-08
PG 1 (Outside) ART K.Andrews B .125" beyond trim
TRAF C.Baran COPY S.Williams T Flat: 14.625" x 12"
MAC rvr/kw/rvr/kw/ AE M.Blaney L .125" all around
rvr PROD D.Gray FOLDED/Finished Size: 9" x 6"
PROOF

NGD4-08-04612-A5394
National Grid
Commercial Business Plan Outer-wrap
Non-Customer
Colors: 7/7 - PMS 634 + PMS 629 + 4CP + aqueous / same
Stock: 100# productolith dull text 10% pcw
Window Size: 4" x 1.5"
Window Placement: 4.625" from L Trim (1" from L fold), 7.25" from B Trim (1" from B fold)
Finishing: Deliver as flat sheet. Will be diecut and folded at lettershop.

BY SIGNING YOUR INITIALS BELOW, YOU ARE STATING THAT YOU HAVE READ AND APPROVED THIS WORK.

CD/ACD	COPYWRITER	AD	PROD SP
ACCT SERVICE	PROD	PROOFING	ACCT SP

	Cyan Dashed Line: Indicates Fold
	Magenta Solid Line: Indicates Trim



3.25" 2.75" 1" 1" 2" 9" 9" 3.625" 6"

Reduce carbon emissions • Plan heating costs more accurately • Lower operating costs • Contribute to a greener community

Make sustainable business your business with natural gas heat.

Did you know that natural gas heat could be a powerful tool for your business? Not only is it a greener, more reliable source of energy, but it can also make a big impact on your bottom line.

When you switch to natural gas heat, your business will become 30% more energy efficient. And while you reduce operating costs, you'll also cut your carbon footprint—by up to 40%. With all these reasons to convert, why would anyone stay with oil?

GAS	vs.	OIL
Continuous, reliable source of energy.		Problematic delivery can slow down your business.
Allows you to budget heating costs with more consistent bills and price.		Volatile market creates unpredictable pricing and costs.
Perfect for heating, water heating, cooking, dryers.		Used mainly for heating.
Reduces carbon dioxide by up to 40% and sulphur dioxide by 100%.		Produces soot, fumes and greenhouse gases.
99% of natural gas comes from North America.		56% of oil comes from abroad.

Convert to natural gas heat today and see the difference it can make for your business and your community.

Call National Grid to set up your free consultation today. It's the first step toward making a big difference.

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SAVE EVEN MORE.
As a National Grid heating customer, you will qualify for FREE energy audits and up to \$100,000 in energy efficiency rebates and incentives.

RELEASED TO VENDOR
Date: 05/14/08

MULLEN
NG
NGD408-04612

VERSION: 4 DATE: 05-08-08
PG 2 (Inside) ART K.Andrews B .125" beyond trim
TRAF C.Baran COPY S.Williams T Flat: 14.625" x 12"
MAC rvr/kw/vrv/kw/ AE M.Blaney L .125" all around
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NGD4-08-04612-A5394
National Grid
Commercial Business Plan Outer-wrap
Non-Customer
Colors: 7/7 - PMS 634 + PMS 629 + 4CP + aqueous / same
Stock: 100# productolith dull text 10% pcw
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ACCT SERVICE	PROD	PROOFING	ACCT SP

--- Cyan Dashed Line: Indicates Fold
— Magenta Solid Line: Indicates Trim

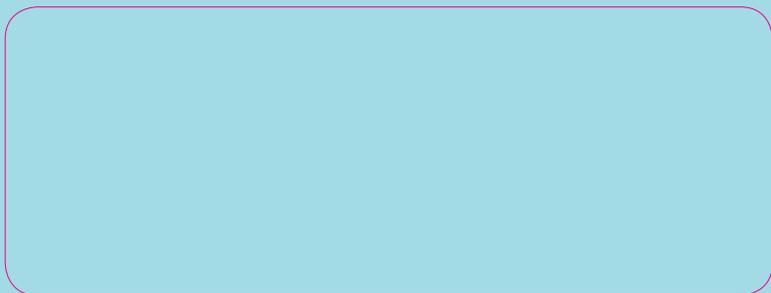


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Put the power of natural gas heating to work for your business and Mother Earth will thank you.



SAVE
50% or more

on a high-efficiency natural gas heating system.

A5395



Adopt a
greener business plan.
Save 50% or more on a
high-efficiency natural gas heating system.



Reduce carbon emissions • Plan heating costs more accurately • Lower operating costs • Contribute to a greener community

Make sustainable business your business with natural gas heat.

Did you know that natural gas heat could be a powerful tool for your business? Not only is it a greener, more reliable source of energy, but it can also make a big impact on your bottom line.

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Call National Grid to set up your free consultation today.
It's the first step toward making a big difference.

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Dear Sample A Sample,

We would all love to be greener. And now your business can be, too—without sacrificing efficiency or spending a lot. In fact, when you switch to natural gas heating from National Grid, you'll not only help the environment, but you'll **improve your bottom line** and **save 50% or more on a high-efficiency natural gas heating system** for your business.

With **reliable energy that doesn't run out**, you won't have to worry about your next oil delivery. And while the price of oil skyrockets, the U.S. Department of Energy forecasts that **natural gas will continue to cost less than fuel oil and propane through 2009** and into the future.

And with **no soot or fumes**, you can run a cleaner, greener business. Maybe best of all, you'll **remove at least 3,000 pounds of carbon from the atmosphere**. That makes a big difference in your community and your world.

It all starts with a simple phone call, and a visit from one of our qualified energy specialists. They'll evaluate your specific business needs and develop a sound plan to bring natural gas to your business. Call National Grid today at **1-800-GAS-2001 ext. 5395**, visit **www.gas2001.com/5395** or simply return the enclosed postcard.

We look forward to building our relationship with your business. Together we can make a difference.



Kim Drago
Director, Business Markets

P.S. Save 50% or more on a high-efficiency natural gas heating system when you call National Grid today at 1-800-GAS-2001 ext. 5395.

Division Data Request DIV 8-14

Request:

Please provide the data, studies and analyses upon which the Company relies to conclude that converting existing non-heating customers to natural gas heating customers will improve the load factor of gas use by such customers and/or the efficiency of utilization of the Company's existing facilities.

Response:

The testimony of Mr. Mongan does not discuss or address the "load factor of gas use" by low-use customers. In terms of increased system utilization, there is no study that is needed to determine that the conversion of a customer from a non-heating natural gas user to a heating user will result in more efficient utilization of the Company's existing facilities. This is because low-use (non-heating) customers are already connected to the gas distribution system, but are using a relatively little amount of gas. When these customers convert to heating service and require a greater amount of gas from the system, the same facilities that delivered their non-heating load, now will deliver the heating load amount; thereby increasing the utilization of the existing facilities.

Division Data Request DIV 8-15

Request:

Re: page 8, lines 4-7 of the direct testimony of witness Mongan, please:

- a. Explain why the level of system utilization would remain a concern to the Company in the context of its proposed revenue decoupling mechanism in this proceeding;
- b. Indicate whether the Company sees a more proactive Gas Marketing Program as an alternative to the adoption of revenue decoupling in this proceeding, and if not, explain why not.

Response:

a. The fundamental premise of the Gas Marketing Program is that it is beneficial to all customers – existing and new – to maintain or increase “system utilization,” which increases the volume of gas throughput over time so that there are more volumes over which to spread fixed costs in base-rate proceedings¹. This premise is the basis upon which other public utility commissions have incorporated these types of programs into rates.

The fundamental premise of decoupling is very different; decoupling is designed to reduce the frequency of base rate filings by addressing declining use per customer, which is caused by price-induced conservation by customers or the introduction of a broad-based energy efficiency program for customers. Declining use per customer prevents the Company from recovering its allowed level of revenues because rates have been set to recover the Company’s fixed costs over a certain throughput level. Decoupling is not designed to ensure that a Company recovers its costs, but rather is designed to assist the Company in recovering its allowed level of revenues. Without a decoupling mechanism, the Company would have to seek frequent base-rate relief from the Commission to recalculate rate recovery over representative levels of billing determinants, including delivery quantities.

With this in mind, adding customer load through the Gas Marketing Program has two potential benefits to customers. First, to the extent that the

¹ Base rates will be set in this proceeding to recover the Company’s fixed costs over a representative level of billing determinants.(number of customers and delivery quantities)

projected load additions are factored into base rates (which they are in this case), rates will be lower than they otherwise would be all else being equal, because the Company's costs will be spread over rate year billing determinants. Rate year billing determinants are the sum of test-year sales units, plus the units anticipated to be added through the Gas Marketing Program; the impact of the additional billing determinants that are the result of the Gas Marketing Program lowers the per-unit cost. Customers also benefit from the Gas Marketing Program, because revenues incremental to those forecasted that serve to improve system utilization help to offset the Company's increased costs of doing business, which may delay the Company's need to file for increased rates. To distinguish between the Gas Marketing Program and the Company's proposed decoupling mechanism, then, the Gas Marketing Program, which improves system utilization, will delay the need to file for a rate increase to account for increased costs; the proposed decoupling mechanism will delay the need to file for a rate increase to account for a decrease in revenues per customer.

- b. Please see the response to item (a), above.

Division Data Request DIV 8-16

Request:

Re: page 8, line 19 through page 9, line 2 of the direct testimony of witness Mongan, please:

- a. Indicate whether participation in the “Northeast Oil Heat Research Alliance” is mandatory for heating oil dealers in the Northeast, and if so provide citations to the law(s) or regulations which make such participation mandatory;
- b. Provide the documents and other information upon which the witness relies to support his assertion of the “mandatory” nature of the referenced “surcharge on heating oil deliveries.”

Response:

(a) Please refer to H.R.2884 the Energy Act of 2000, TITLE VII—“NATIONAL OIL HEAT RESEARCH ALLIANCE ACT OF 2000.” SEC. 707 entitled “ASSESSMENTS” states “(a) RATE- The assessment rate shall be equal to two-tenths-cent per gallon of No. 1 distillate and No. 2 dyed distillate,” and “(b) COLLECTION RULES- (1) COLLECTION AT POINT OF SALE- The assessment shall be collected at the point of sale of No. 1 distillate and No. 2 dyed distillate by a wholesale distributor to a person other than a wholesale distributor, including a sale made pursuant to an exchange.” Also please refer to www.nora-oilheat.org.

(b) Please refer to Section SEC. 709, entitled “COMPLIANCE,” and stating “(a) IN GENERAL- The Alliance may bring a civil action in United States district court to compel payment of an assessment under section 707.”

Division Data Request DIV 8-17

Request:

Re: page 9, lines 12-13 of the direct testimony of witness Mongan, please:

- a. Provide the information upon which the Company relies to assess the relative efficiencies and economics of “state-of-the art gas heating equipment” and “late model oil-heating equipment.”
- b. Provide all information available to the Company regarding the efficiency and economics of “state-of-the-art” oil-heating equipment.

Response:

(a) Please refer to the most recent Department of Energy Rulemaking for Residential Furnaces and Boilers (see Attachment DIV-8-17(a)), presented as 10 CFR Part 430, Energy Conservation Program for Consumer Products: Energy Conservation Standards for Residential Furnaces and Boilers (Final Rule dated November 19, 2007). The general discussion in Section III B.2 includes Table II.2 entitled, “2.—MAX TECH LEVELS CONSIDERED IN FURNACE AND BOILER RULEMAKING.” This table indicates that the best available gas furnace or boilers currently exhibits a higher efficiency than its oil-fired equivalent. This is primarily due to the easier ability to recover heat from the moisture formed in the gas appliance exhaust. This comparison can also be confirmed by reviewing the catalogs for the best equipment sold by several major manufacturers of heating equipment that currently offer both oil and gas-fired equipment.

(b) Please refer to the Company’s response to item (a) above regarding efficiency. The economics of high-efficiency equipment varies according to a variety of variables including annual fuel used and fuel prices. However, typical pricing data shows that the highest efficiency equipment can cost as much as two to three times the cost of new equipment that minimally meets the federal efficiency standard. However, this extra cost can be largely offset by the approved high efficiency gas rebate program in Rhode Island in addition to savings in fuel costs of more than 10%. Please refer to:

http://www.nationalgridus.com/rigas/non_html/gasnetworks_rebate.pdf



Federal Register

**Monday,
November 19, 2007**

Part II

**Department of
Energy**

10 CFR Part 430

**Energy Conservation Program for
Consumer Products: Energy Conservation
Standards for Residential Furnaces and
Boilers; Final Rule**

DEPARTMENT OF ENERGY**10 CFR Part 430**

[Docket Number: EE-RM/STD-01-350]

RIN 1904-AA78

Energy Conservation Program for Consumer Products: Energy Conservation Standards for Residential Furnaces and Boilers

AGENCY: Department of Energy.

ACTION: Final rule.

SUMMARY: The Department of Energy (DOE) has determined that revised energy conservation standards for residential furnaces and boilers will result in significant conservation of energy, are technologically feasible, and are economically justified. On this basis, DOE is today amending the existing energy conservation standards for these products.

DATES: The rule is effective January 18, 2008. The standards established in today's final rule have a compliance date of November 19, 2015.

ADDRESSES: For access to the docket to read background documents, the technical support document (TSD), transcripts of the public meetings in this proceeding, or comments received, visit the U.S. Department of Energy, the Resource Room of the Building Technologies Program at 950 L'Enfant Plaza Drive, SW., Washington, DC. 20024, (202) 586-2945, between 9 a.m. and 4 p.m., Monday through Friday, except Federal holidays. Please call Ms. Brenda Edwards at the above telephone number for additional information regarding visiting the Resource Room. Please note: DOE's Freedom of Information Reading Room (formerly Room 1E-190 at the Forrestal Building) no longer houses rulemaking materials. You may also obtain copies of certain previous rulemaking documents from this proceeding (i.e., Framework Document, advance notice of proposed rulemaking (ANOPR), notice of proposed rulemaking (NOPR or proposed rule)), draft analyses, public meeting materials, and related test procedure documents from the Office of Energy Efficiency and Renewable Energy's Web site at http://www.eere.energy.gov/buildings/appliance_standards/residential/furnaces_boilers.html.

FOR FURTHER INFORMATION CONTACT: Mohammed Khan, Project Manager, Energy Conservation Standards for Residential Furnaces and Boilers, U.S. Department of Energy, Energy Efficiency and Renewable Energy, Building

Technologies Program, EE-2J, 1000 Independence Avenue, SW., Washington, DC 20585-0121, (202) 586-7892, e-mail: Mohammed.Khan@ee.doe.gov; or Chris Calamita, Esq. or Francine Pinto, Esq., U.S. Department of Energy, Office of the General Counsel, GC-72, 1000 Independence Avenue, SW., Washington, DC 20585-0121, (202) 586-9507, e-mail: Christopher.Calamita@hq.doe.gov or Francine.Pinto@hq.doe.gov.

SUPPLEMENTARY INFORMATION:

I. Summary of the Final Rule and Its Benefits

- A. The Standard Levels
- B. Current Federal Standards for Residential Furnaces and Boilers
- C. Consumer Benefits
- D. Impact on Manufacturers
- E. National Benefits
- F. Conclusion

II. Introduction

- A. Authority
- B. Background
 1. Current Standards
 2. History of Standards Rulemaking for Residential Furnaces and Boilers

III. General Discussion

- A. Test Procedures
- B. Technological Feasibility
 1. General
 2. Maximum Technologically Feasible Levels
- C. Energy Savings
- D. Economic Justification
 1. Specific Criteria
 - a. Economic Impact on Consumers and Manufacturers
 - b. Life-Cycle Costs
 - c. Energy Savings
 - d. Lessening of Utility or Performance of Products
 - e. Impact of Any Lessening of Competition
 - f. Need of the Nation to Conserve Energy
 - g. Other Factors
 2. Rebuttable Presumption

IV. Methodology and Revisions to the Analyses Employed in the Proposed Rule

- A. Engineering Analysis
- B. Life-Cycle Cost and Payback Period Analyses
- C. National Impact Analysis
- D. Consumer Subgroup Analysis
- E. Manufacturer Impact Analysis
- F. Employment Impact Analysis
- G. Regulatory Impact Analysis
- H. Utility Impact Analysis
- I. Environmental Analysis

V. Discussion of Other Comments

- A. Information and Assumptions Used in Analysis
 1. Engineering Analysis
 2. Life-Cycle Cost Analysis
 3. Manufacturer Impact Analysis
- B. Other Issues
 1. Joint Stakeholder Recommendation for Boilers
 2. Regional Standards and Waiver from Federal Preemption for States
 3. Effective Date for New Standards
 4. Consumer Benefits From Reduction in Natural Gas Prices Associated With a

Standard of 90-Percent AFUE or Higher for Non-Weatherized Gas Furnaces

5. Efficiency Standards for Electric Furnaces
 6. Electricity Consumption of Furnace Fans
 7. Use of LCC Results in Selecting Standard Levels
 8. Definition of Trial Standard Levels
 9. Test Procedure
 10. Structural Cost Associated With Condensing Furnaces
- VI. Analytical Results and Conclusions
- A. Trial Standard Levels
 - B. Significance of Energy Savings
 - C. Economic Justification
 1. Economic Impact on Consumers
 - a. Life-Cycle Costs and Payback Period
 - b. Consumer Subgroup Analysis
 2. Economic Impact on Manufacturers
 - a. Industry Cash-Flow Analysis Results
 - b. Impacts on Manufacturing Capacity and Subgroups of Manufacturers
 - c. Cumulative Regulatory Burden
 3. National Net Present Value and Net National Employment
 4. Impact on Utility or Performance of Equipment
 5. Impact of Any Lessening of Competition
 6. Need of the Nation to Conserve Energy
 7. Other Factors
 - D. Conclusion

VII. Procedural Issues and Regulatory Review

- A. Review Under Executive Order 12866
 - B. Review Under the Regulatory Flexibility Act
 - C. Review Under the Paperwork Reduction Act
 - D. Review Under the National Environmental Policy Act
 - E. Review Under Executive Order 13132
 - F. Review Under Executive Order 12988
 - G. Review Under the Unfunded Mandates Reform Act of 1995
 - H. Review Under the Treasury and General Government Appropriations Act, 1999
 - I. Review Under Executive Order 12630
 - J. Review Under the Treasury and General Government Appropriations Act, 2001
 - K. Review Under Executive Order 13211
 - L. Review Under the Information Quality Bulletin for Peer Review
 - M. Review Under Executive Order 12898
 - N. Congressional Notification
- VIII. Approval of the Office of the Secretary

I. Summary of the Final Rule and Its Benefits**A. The Standard Levels**

The Energy Policy and Conservation Act, as amended (42 U.S.C. 6291 et seq.; EPCA), directs the Department of Energy (DOE) to consider amending the energy conservation standards for residential furnaces and boilers established under EPCA. (42 U.S.C. 6295(f)(3)(B)) Any amended standard must be designed to "achieve the maximum improvement in energy efficiency * * * which the Secretary determines is technologically feasible and economically justified." (42 U.S.C. 6295(o)(2)(A)) Moreover, EPCA states that the Secretary may not establish an amended standard if such standard would not result in

“significant conservation of energy,” or “is not technologically feasible or economically justified.” (42 U.S.C. 6295(o)(3)(B)) The standards in today’s final rule, which apply to non-weatherized and weatherized gas furnaces, mobile home gas furnaces, oil-fired furnaces, and gas- and oil-fired boilers,¹ satisfy these requirements.

Table I.1 shows the standard levels DOE is promulgating today. These standards will apply to products manufactured for sale in the United States, or imported to the United States, on or after November 19, 2015.

TABLE I.1.—STANDARD LEVELS FOR FURNACES AND BOILERS

Product class	AFUE* (%)
Non-weatherized gas furnaces	80
Weatherized gas furnaces	81
Mobile home gas furnaces	80
Oil-fired furnaces	82
Gas boilers	82
Oil-fired boilers	83

*AFUE = annual fuel utilization efficiency.

B. Current Federal Standards for Residential Furnaces and Boilers

Table I.2 presents the current Federal minimum energy conservation standards for residential furnaces and boilers.

TABLE I.2.—CURRENT FEDERAL STANDARDS FOR RESIDENTIAL FURNACES AND BOILERS

Product class	AFUE (%)
Non-weatherized gas furnaces	78
Weatherized gas furnaces	78
Mobile home gas furnaces	75
Oil-fired furnaces	78
Gas boilers	80
Oil-fired boilers	80

C. Consumer Benefits

Table I.3 summarizes the implications of today’s standards for consumers of residential furnaces and boilers.

TABLE I.3.—IMPLICATIONS OF NEW STANDARDS FOR CONSUMERS*

Product class	AFUE (%)	Installed cost	Installed cost increase	Life-cycle cost savings	Payback period (years)
Non-weatherized gas furnaces	80	\$2,044	\$8	\$2	1.7
Weatherized gas furnaces	81	3,907	19	62	3.4
Mobile home gas furnaces	80	940	96	111	3.7
Oil-fired furnaces	82	3,142	17	177	0.7
Gas boilers	82	3,826	199	208	12
Oil-fired boilers	83	3,920	28	69	0.9

* Average values.

The economic impacts on consumers (i.e., the average life-cycle cost (LCC) savings) are positive. For example, a non-weatherized gas furnace meeting the standard is projected to have a very small increase in average total installed cost, and the annual energy savings result in an average LCC savings of \$2 and a payback period of 1.7 years. No households purchasing non-weatherized gas furnaces, including southern households, would experience a net LCC increase. A gas boiler meeting the standard is projected to have an increase in average total installed cost of \$199, but the annual energy savings result in an average LCC savings of \$208 and a payback period of 12 years.

D. Impact on Manufacturers

Using a real corporate discount rate of 7.4 percent for furnaces and 6.2 percent for boilers, DOE estimates the industry net present value (INPV) of the residential furnace industry to be \$1,528 million and the INPV of the residential boiler industry to be \$279 million, in 2006\$. DOE estimates the impact of today’s standards on the INPV of the residential furnace and boiler industry to be between a 4.0 percent loss and a

2.7 percent loss (-\$74 million to -\$48 million). Based on DOE’s interviews with the major manufacturers of residential furnaces and boilers, DOE estimates minimal plant closings or loss of employment as a result of the standards promulgated today.

E. National Benefits

DOE estimates the standards will save approximately 0.25 quads (quadrillion (10¹⁵) British thermal units (Btu)) of energy over 24 years (2015–2038). For comparison, approximately four quads are used annually for space heating in U.S. homes.

These energy savings are projected to result in cumulative greenhouse gas emission reductions of approximately 7.8 million tons (Mt) of carbon dioxide (CO₂). Additionally, the standards will help alleviate air pollution by resulting in approximately 9.2 thousand tons (kt) of nitrogen oxides (NO_x) emission reductions from 2015 through 2038, or a similar amount of NO_x emissions allowance credits in areas where such emissions are subject to emissions caps, and approximately 1.8 kt of household emission reductions of sulfur dioxide (SO₂). DOE expects the standards to

have negligible impact on electricity generating capacity.

The national net present value (NPV) of the standards is \$0.69 billion using a seven-percent discount rate and \$2.18 billion using a three-percent discount rate, cumulative from 2015 to 2038 in 2006\$. This is the estimated total value of future savings minus the estimated increased costs for purchasing complying products, discounted to the year 2007.

The benefits and costs of today’s final rule can also be expressed in terms of annualized 2006\$ values over the forecast period 2015 through 2038. Using a seven percent discount rate for the annualized cost analysis, the cost of the standards established in today’s final rule is \$41 million per year in increased equipment and installation costs while the annualized benefits are \$144 million per year in reduced equipment operating costs. Using a three percent discount rate, the cost of the standards established in today’s final rule is \$40 million per year while the benefits of today’s standards are \$204 million per year.

¹ These types of products are referred to collectively hereafter as “residential furnaces and boilers” or “furnaces and boilers.”

F. Conclusion

DOE concludes that the benefits (energy savings, consumer LCC savings, national NPV increases, and emissions reductions) to the Nation of the standards outweigh their costs (loss of manufacturer INPV and consumer LCC increases for a relatively small number of furnace and boiler users). DOE also concludes that today's standards for furnaces and boilers represent that maximum improvement in energy efficiency that is technologically feasible and economically justified, and will result in significant energy savings. At present, products that meet the new standard levels are commercially available.

II. Introduction

A. Authority

Title III of EPCA sets forth a variety of provisions designed to improve energy efficiency; specifically, Part B of title III establishes the Energy Conservation Program for Consumer Products other than Automobiles. (42 U.S.C. 6291–6309) The program covers consumer products (referred to hereafter as “covered products”), including residential furnaces and boilers. (42 U.S.C. 6292(a)(5))

Under EPCA, the energy conservation program consists essentially of the following: Testing, labeling, and Federal energy conservation standards. The Federal Trade Commission (FTC) has primary responsibility for labeling, and DOE implements the remainder of the program. (42 U.S.C. 3294) Section 323 of EPCA authorizes DOE, with assistance from the National Institute of Standards and Technology (NIST) and subject to certain criteria and conditions, to develop test procedures to measure the energy efficiency, energy use, or estimated annual operating cost of each covered product. (42 U.S.C. 6293) The applicable furnace and boiler test procedures appear at Title 10 of the Code of Federal Regulations (CFR) part 430, subpart B, Appendix N.

EPCA provides criteria for prescribing new or amended standards for covered products. Any new or amended standard for a covered product must be designed to achieve the maximum improvement in energy efficiency that is technologically feasible and economically justified. (42 U.S.C. 6295(o)(2)(A))

Additionally, EPCA provides specific prohibitions on prescribing new and amended standards. Generally, DOE may not prescribe an amended or new standard for products if no test procedure has been established for the

product.² (42 U.S.C. 6295(o)(3)(A). Further, DOE may not prescribe an amended or new standard if DOE determines by rule that such standard would not result in “significant conservation of energy,” or “is not technologically feasible or economically justified.” (42 U.S.C. 6295(o)(3)(B))

EPCA also provides that, in deciding whether a standard is economically justified, DOE must, after receiving comments on a proposed standard, determine whether the benefits of the standard exceed its burdens by considering, to the greatest extent practicable, the following seven factors:

(1) The economic impact of the standard on manufacturers and consumers of the products subject to the standard;

(2) The savings in operating costs throughout the estimated average life of the covered products in the type (or class) compared to any increase in the price, initial charges, or maintenance expenses for the covered products that are likely to result from the imposition of the standard;

(3) The total projected amount of energy savings likely to result directly from the imposition of the standard;

(4) Any lessening of the utility or the performance of the covered products likely to result from the imposition of the standard;

(5) The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the imposition of the standard;

(6) The need for national energy conservation; and

(7) Other factors the Secretary considers relevant. (42 U.S.C. 6295(o)(2)(B)(i))

EPCA contains what is commonly known as an “anti-backsliding” provision. This provision mandates that the Secretary not prescribe any amended standard that either increases the maximum allowable energy use or decreases the minimum required energy efficiency of a covered product. (42 U.S.C. 6295(o)(1)) Also, the Secretary may not prescribe an amended or a new standard if interested persons have established by a preponderance of the evidence that the standard is likely to result in the unavailability in the United States of any covered product type (or class) with performance characteristics, features, sizes, capacities, and volume that are substantially the same as those generally available in the United States. (42 U.S.C. 6295(o)(4))

² This prohibition does not apply to standards for dishwashers, clothes washers, clothes dryers, and kitchen ranges and ovens. (42 U.S.C. 3295(o)(3)(A))

Section 325(q) of EPCA is applicable to promulgating a standard for a type or class of covered product that has two or more subcategories. (42 U.S.C. 6295(q)) DOE must specify a different standard level than that which applies generally to such type or class of products “for any group of covered products which have the same function or intended use, if * * * products within such group— (A) consume a different kind of energy from that consumed by other covered products within such type (or class); or (B) have a capacity or other performance-related feature which other products within such type (or class) do not have and such feature justifies a higher or lower standard” than applies or will apply to the other products. (42 U.S.C. 6295(q)(1)(A) and (B)) In determining whether a performance-related feature justifies such a different standard for a group of products, DOE must consider “such factors as the utility to the consumer of such a feature” and other factors DOE deems appropriate. (42 U.S.C. 6295(q)(1)) Any rule prescribing such a standard must include an explanation of the basis on which DOE established such higher or lower level. (42 U.S.C. 6295(q)(2)) In 1993, DOE relied on this authority to establish four product classes of residential furnaces and two product classes of residential boilers, which are the subject of this rulemaking. 58 FR 47326 (September 8, 1993).

Federal energy conservation requirements generally preempt State laws and regulations concerning energy conservation testing, labeling, and standards. (42 U.S.C. 6297) DOE is authorized, however, to grant waivers from preemption for particular State laws or regulations, in accordance with the procedures and provisions set forth in section 327(d) of EPCA. (42 U.S.C. 6297(d)) Specifically, States with a regulation that provides for an energy conservation standard for any type of covered product for which there is a Federal energy conservation standard may petition the Secretary for a DOE rule that permits the State regulation to become effective with respect to such covered product. In order for a petition to be granted, a State must establish by a preponderance of the evidence that its regulation is needed to meet “unusual and compelling State or local energy * * * interests.” (42 U.S.C. 6297(d)(1)(B))

B. Background

1. Current Standards

EPCA established an energy conservation standard for residential furnaces and boilers. It set the standard

in terms of the annual fuel utilization efficiency (AFUE) descriptor at a minimum value of 78 percent for most furnaces. (42 U.S.C. 6295(f)(1)) It set the minimum AFUE at 75 percent for gas steam boilers and 80 percent for other boilers. (42 U.S.C. 6295(f)(1)(A)) For mobile home furnaces, EPCA set the minimum AFUE at 75 percent. (42 U.S.C. 6295(f)(2)) These standards became effective on January 1, 1992, with the exception of the standard for mobile home furnaces, for which the effective date was September 1, 1990. (42 U.S.C. 6295(f)(1) and (2))

2. History of Standards Rulemaking for Residential Furnaces and Boilers

As discussed in the October 2006 notice of proposed rulemaking (NPR), this rulemaking began with the publication of an advance notice of proposed rulemaking (ANOPR) on September 28, 1990. 55 FR 39624. A second ANOPR was published on July 29, 2004. 69 FR 45420. On October 6, 2006, DOE published a NPR in the **Federal Register** proposing amended energy efficiency standards for residential furnace and boilers. 71 FR 59203. In conjunction with the October 2006 NPR, DOE also published on its Web site the complete technical support document (TSD) for the proposed rule, which incorporated the final analyses DOE conducted and technical documentation of each analysis. The NPR TSD included the engineering analysis spreadsheet, the LCC spreadsheets, the national and regional impact analysis spreadsheets, and the manufacturer impact analysis (MIA) spreadsheet—all of which are available at http://www.eere.energy.gov/buildings/appliance_standards/residential/fb_nopr_analysis.html. The energy efficiency standards proposed for furnaces and boilers were as shown in Table II.1.

TABLE II.1.—OCTOBER 2006 PROPOSED ENERGY EFFICIENCY STANDARDS FOR FURNACES AND BOILERS

Product class	AFUE* (%)
Non-weatherized gas furnaces	80
Weatherized gas furnaces	83
Mobile home gas furnaces	80
Oil-fired furnaces	82
Gas boilers	84
Oil-fired boilers	83

* AFUE = annual fuel utilization efficiency.

The October 2006 NPR also included additional background information on the history of this rulemaking and on DOE's use in this rulemaking of the procedures,

interpretations, and policies set forth in the Process Rule. 71 FR 59207–59208. DOE held a public meeting in Washington, DC, on October 30, 2006, to hear oral comments relevant to the October 2006 proposed rule.

After the publication of the October 2006 proposed rule, DOE met with GAMA, Carrier, and Rheem on December 14, 2006, to receive comments regarding cost and safety issues concerning weatherized gas furnaces that are manufactured to operate at 83-percent AFUE. (GAMA, No. 146 at p. 1)³ These comments are further described in section IV.A. In addition, DOE issued a notice of data availability and reopening of comment period on February 9, 2007, to respond to questions raised at the public meeting concerning DOE's assumptions regarding shipments in the base case and the installation cost for oil-fired furnaces. 72 FR 6184.

III. General Discussion

A. Test Procedures

Section 7(c) of the Process Rule indicates that, if modifications are needed to its test procedures for a covered product, DOE will issue a final, modified test procedure before issuing a proposed rule for energy conservation standards for that product. DOE has determined that modifications are not needed to its existing test procedure for furnaces and boilers, and accordingly has not adopted a revised test procedure for these products. Comments received about test procedures are discussed in section V.B.9.

B. Technological Feasibility

1. General

As stated above, standards that DOE establishes for furnaces and boilers must be technologically feasible. (42 U.S.C. 6295(o)(2)(A) and (o)(3)(B)) DOE considers a design option to be technologically feasible if it is in use by the respective industry or if research has progressed to the development of a working prototype. The Process Rule sets forth a definition of technological feasibility as follows: "Technologies incorporated in commercial products or in working prototypes will be considered technologically feasible." 10

³ A notation in the form "GAMA, No. 146 at p. 1" identifies a written comment DOE has received and has included in the docket of this rulemaking. This particular notation refers to a comment (1) By the Gas Appliance Manufacturers Association (GAMA), (2) under document number 146 in the docket of this rulemaking (maintained in the Resource Room of Building Technologies Program), and (3) appearing on page 1 of document number 146.

CFR part 430, subpart C, Appendix A, section 4(a)(4)(i).

This final rule considers the same design options as those evaluated in the October 2006 proposed rule. (See the final rule TSD accompanying this notice, Chapter 4.) The evaluated technologies all have been used (or are being used) in commercially available products or working prototypes. The designs all incorporate materials and components that are commercially available in today's furnace and boiler supply market. DOE has determined that all of the efficiency levels evaluated in this notice are technologically feasible.

2. Maximum Technologically Feasible Levels

In developing the October 2006 proposed rule, consistent with section 325(p)(2) of EPCA, DOE identified the maximum technologically feasible levels. (See NPR TSD Chapter 6.) DOE did not receive any comments on the October 2006 proposed rule to lead DOE to consider changes to the maximum technologically feasible (max tech) levels. Therefore, for today's final rule, the max tech levels for all classes are the same max tech levels identified in the October 2006 proposed rule and are provided in Table II.2 below. 71 FR 59211.

TABLE II.2.—MAX TECH LEVELS CONSIDERED IN FURNACE AND BOILER RULEMAKING

Product class	AFUE* (%)
Non-weatherized gas furnaces	96
Weatherized gas furnaces	83
Mobile home gas furnaces	90
Oil-fired furnaces	85
Gas boilers	99
Oil-fired boilers	95

* AFUE = annual fuel utilization efficiency.

C. Energy Savings

As stated above, EPCA directs DOE to establish amended standards at a level of maximum improvement in energy efficiency that is technologically feasible and economically justified. (42 U.S.C. 6295(o)(2)(A)) DOE is prohibited from adopting a standard for a product if that standard would not result in "significant" energy savings, or is not technologically feasible or economically justified. (42 U.S.C. 6295(o)(3)(B)) While EPCA does not define the term "significant," the U.S. Court of Appeals, in *Natural Resources Defense Council v. Herrington*, indicated that Congress intended "significant" energy savings in this context to be savings that were not

“genuinely trivial.” 768 F.2d 1355, 1373 (D.C. Cir. 1985). The energy savings for energy conservation standards at each of the trial standard levels (TSLs) considered in this rulemaking are nontrivial, and therefore, DOE has determined them to be “significant” within the meaning of section 325 of EPCA.

DOE forecasted energy savings attributable to the TSLs using the national energy savings (NES) spreadsheet tool, as discussed in the October 2006 proposed rule. 71 FR 59211–59212, 59224–59227, and 59245–59246. For the purpose of today’s final rule, DOE has relied on the NES analysis as presented in the October 2006 proposed rule. EPCA further requires consideration of energy savings in the context of the economic justification.

D. Economic Justification

1. Specific Criteria

As noted earlier, EPCA provides seven factors for DOE to evaluate in determining whether an energy conservation standard for residential furnaces and boilers is economically justified. (42 U.S.C. 6295(o)(2)(B)(i)) The following discusses how DOE has addressed each of those seven factors in this rulemaking. Changes to considerations of those criteria between the proposed rule and the final rule are also discussed below. The inputs relied upon in consideration of each criterion and changes to those inputs are discussed in section V, below.

a. Economic Impact on Consumers and Manufacturers

DOE considered the economic impact of the standard on consumers and manufacturers, as discussed in the October 2006 proposed rule. 71 FR 59212, 59219–59223, 59228–59233, 59234–59245. For this final rule, DOE updated the analyses to incorporate more recent material price information.

b. Life-Cycle Costs

DOE considered life-cycle costs of furnaces and boilers, as discussed in the October 2006 proposed rule. 71 FR 59212–59213, 59219–59224, 59234–59239. It calculated the sum of the purchase price and the operating expense—discounted over the lifetime of the products—to estimate the range in expected LCC benefits to consumers due to the standards.

c. Energy Savings

While significant conservation of energy is a separate statutory requirement for imposing an energy conservation standard, EPCA also

requires DOE, in determining the economic justification of a proposed standard, to consider the total projected energy savings that are expected to result directly from the standard. (42 U.S.C. 6295(o)(2)(B)(i)(III)) As in the October 2006 Proposed Rule, DOE used the NES spreadsheet results in its consideration of total projected savings that are directly attributable to the considered standard levels. 71 FR 59211–59212, 59224–59227, 59245–59246.

d. Lessening of Utility or Performance of Products

As reflected in the October 2006 proposed rule, DOE considered whether any lessening of the utility or performance of furnaces and boilers would be likely to result from today’s standards. 71 FR 59213.

e. Impact of Any Lessening of Competition

DOE considers any lessening of competition that is likely to result from standards. Accordingly, as discussed in the October 2006 proposed rule, 71 FR 59213, 59247, DOE requested that the Attorney General transmit to the Secretary a written determination of the impact, if any, of any lessening of competition likely to result from the standard, together with an analysis of the nature and extent of such impact. (42 U.S.C. 6295(o)(2)(B)(i)(V) and (B)(ii))

To assist the Attorney General in making such a determination, DOE provided the Department of Justice (DOJ) with copies of the October 2006 proposed rule and the NOPR TSD for review. The Attorney General’s response is discussed in section VI.C.5 below, and is reprinted at the end of this final rule.

f. Need of the Nation To Conserve Energy

In considering standards for furnaces and boilers, the Secretary must consider the need of the Nation to conserve energy. (42 U.S.C. 6295(o)(2)(B)(i)(VI)) The Secretary recognizes that energy conservation benefits the Nation in several important ways, including slowing the depletion of domestic natural gas resources, improving the security of the Nation’s energy system, and reducing greenhouse gas emissions. The potential benefits from additional natural gas conservation are further discussed in section V.B.4 below.

g. Other Factors

The Secretary, in determining whether a standard is economically justified, may consider any other factors that the Secretary deems to be relevant.

(42 U.S.C. 6295(o)(2)(B)(i)(VII)) In considering amended standards in the October 2006 proposed rule and in adopting today’s standards, the Secretary considered the potential for furnace and boiler standards to pose public health risks due to carbon monoxide release into the home as a result of venting system or heat exchanger failure. As discussed in section VI of this preamble, potential safety concerns were weighed against adopting certain standard levels.

2. Rebuttable Presumption

Section 325(o)(2)(B)(iii) of EPCA states that there is a rebuttable presumption that an energy conservation standard is economically justified if the increased installed cost for a product that meets the standard is less than three times the value of the first-year energy savings resulting from the standard, as calculated under the applicable DOE test procedure. (42 U.S.C. 6295(o)(2)(B)(iii)) Under the standard levels adopted in this document for non-weatherized and weatherized gas furnaces, mobile home gas furnaces, and hot-water oil-fired boilers, DOE determined that this presumption applies. Regardless of the rebuttable presumption, DOE also determined that all of the standard levels adopted in today’s final rule are economically justified based on the above-described analyses.

IV. Methodology and Revisions to the Analyses Employed in the Proposed Rule

DOE used a number of analytical tools that it previously developed and adapted for use in this rulemaking. One of the tools is a spreadsheet that calculates LCC and payback period (PBP). Another tool calculates NES and national NPV. DOE also used the Government Regulatory Impact Model (GRIM), along with other methods, in its MIA. Finally, DOE developed an approach using the National Energy Modeling System (NEMS) to estimate impacts of residential furnace and boiler energy efficiency standards on utilities and the environment. Each of the analytical tools is discussed in detail in the October 2006 NOPR. 71 FR 59213–59234.

As a basis for this final rule, DOE has continued to use the spreadsheets and approaches explained in the October 2006 NOPR. DOE used the same general methodology as applied in the October 2006 NOPR but revised some of the assumptions and inputs for the final rule in response to stakeholder comments. These updates are discussed in the sections below.

A. Engineering Analysis

The purpose of the engineering analysis was to characterize the relationship between the efficiency and the cost of residential furnaces and boilers. As discussed in the NOPR, DOE used the design-option approach, the efficiency-level approach, and the cost-assessment approach to the engineering analysis. 71 FR 59214–59219. As part of the analysis, DOE developed data—

including manufacturing costs, markups, installation costs, and maintenance costs—that it used to establish the manufacturing selling price of more-efficient equipment. Chapter 6 of the TSD contains detailed discussion of the engineering analysis methodology.

In response to the publication of the October 2006 proposed rule, DOE received a number of comments on the engineering analysis methodology.

These comments referred to the assumptions concerning the heat exchanger materials, costs for weatherized gas furnaces, the installation costs for gas-fired boilers, and other topics. In response to these comments, DOE made several changes to the data applied in its approach. Table IV.1 summarizes the data DOE used to derive the inputs to the engineering analysis for the NOPR and for today’s final rule.

TABLE IV.1.—APPROACH AND DATA USED TO DERIVE THE INPUTS TO THE ENGINEERING ANALYSIS

Input	NOPR analysis	Final rule analysis
Equipment Cost	For the most widely used efficiency levels, DOE used a cost model of manufacturing costs created by tear-down analysis. For the remaining levels, DOE used design-option analysis. Incorporated industry feedback from GAMA and individual manufacturers to generate manufacturing-cost-versus-efficiency curves. Updated manufacturing-cost-versus-efficiency curves.	Same method, using average materials prices for the period 2002 to 2006. For weatherized gas furnaces, assumed stainless steel heat exchangers for 82-percent and 83-percent AFUE products. For gas boilers, assumed those fractions of boilers requiring Category III venting at various AFUE levels will also incorporate a draft inducer into the product design.
Markups	Derived markups from an analysis of corporate financial data. Multiplied manufacturing costs by manufacturer, distributor, contractor, and builder markups, and sales tax, as appropriate, to get equipment price.	No change.
Installation Cost	Used a distribution of weighted-average installation costs from the Installation Model. Installation configurations are weight-averaged by frequency of occurrence in the field, and vary by installation size. The Installation Model is based on a commonly used cost-estimation method and is comparable to available, known data. New assumption that all 81-percent AFUE gas furnaces use double-wall vents.	No change.
Maintenance Costs	Used Gas Research Institute data for gas furnaces and boilers, water heater rulemaking survey results for oil-fired equipment, and data from the 1993 rule-making for mobile home furnaces. Accounted for higher maintenance frequency for modulating design option, and used same costs for condensing and non-condensing equipment.	Same sources for maintenance costs. Included repair costs for gas-fired equipment as a function of the equipment price.
Annual Energy Use*	Calculated energy use using the DOE test procedure ...	No change.
Energy Prices*	Annual Energy Outlook (AEO)2005 forecast prices for effective date of 2015.	AEO2007 forecast prices for effective date of 2015.

* Inputs required to calculate rebuttable-presumption payback period. For more details on the rebuttable-presumption payback period, refer to sections III.D.2 and VI.C.1.a.

GAMA, Lennox, Carrier, and Trane submitted comments urging DOE to revise the costs assumed in the engineering analysis for manufacturing high-efficiency weatherized gas furnaces. Specifically, GAMA commented that DOE underestimated the cost of attaining 83-percent AFUE. GAMA stated that a significant amount of condensation can build up upon start-up of a weatherized gas furnace having an 83-percent AFUE and that the unit must run for a considerable amount of time before the heat exchanger completely dries out. As a result, GAMA commented that manufacturers would need to design their weatherized gas furnaces at 83-percent AFUE to handle condensate. (GAMA, No. 116 at pp. 5–8)⁴ Lennox pointed out that it is

physically possible to design a furnace that will deliver 83-percent AFUE in a laboratory test, but that the variability of outdoor conditions will pose condensation problems at efficiency levels above 80-percent AFUE. At 83-percent AFUE, which translates to a steady-state efficiency of 85.5 percent or higher, Lennox stated that it may also be necessary to provide a condensate disposal system for the furnace. (Public Meeting Transcript, No. 107.6 at p. 107)

Carrier commented that weatherized gas furnaces are installed outdoors, and moisture in the flue gas cannot be allowed to condense, regardless of the corrosion-resistance of the material used. (Carrier, No. 118 at pp. 1–2) Carrier stated its belief that a means to dispose of the condensate in cold

outdoor ambient conditions must be developed to provide for drainage or freeze protection. It further stated that, when cold outside air and safety factors are taken into account, the maximum design efficiency to avoid significant potential for continuous condensation on a complete model family is 80-percent AFUE. (Carrier, No. 118 at pp. 1–2)

Trane commented that 83-percent AFUE for weatherized gas furnaces would result in a steady-state efficiency of 85–86 percent, which would necessitate different, more costly materials than the materials DOE assumed in the October 2006 proposed rule. (Public Meeting Transcript, No. 107.6 at p. 107)

GAMA and Lennox specifically commented on DOE’s incremental

manufacturing cost increase of \$30 for an 83-percent AFUE weatherized gas furnace over the baseline. GAMA pointed out that DOE's NOPR analysis used increased heat exchanger area as the only design option needed to achieve 83-percent AFUE. GAMA stated that, based on manufacturer experience, the proposed 83-percent AFUE standard for weatherized gas furnaces would require the use of stainless steel for internal components such as the heat exchanger, collector box, and internal flue, due to the expected internal condensation. GAMA also commented that AL 29-4C is the most probable type of stainless steel that manufacturers would use, which would significantly increase the cost of the product. GAMA also stated its opinion that weatherized gas furnaces at 83-percent AFUE would also require a condensate disposal system that could function in below-freezing temperatures. GAMA surveyed its members and provided estimates of the incremental manufacturing costs to reach 83-percent AFUE over the baseline, which range from \$78 to \$320. (GAMA, No. 116 at pp. 5-8)

Lennox also disagreed with DOE's analysis, which indicated that an 83-percent AFUE weatherized gas furnace with characteristics satisfactory for the expected use can be manufactured and sold to the consumer for an additional \$30. Lennox stated that GAMA's average incremental manufacturing cost estimate of \$223 over the baseline for an 83-percent AFUE weatherized gas furnace, for the addition of stainless steel heat exchangers and condensate removal components, results in an increase in consumer cost of approximately \$500. (Lennox, No. 130 at pp. 2-3)

DOE reviewed all the statements from GAMA, Lennox, Carrier, and Trane and revised its engineering analysis accordingly. Specifically, DOE revised its cost assumptions for the heat exchangers in 82-percent- and 83-percent-AFUE weatherized gas furnaces. In the October 2006 proposed rule, DOE assumed that these heat exchangers were made of aluminized steel—the same material used for the higher volume non-weatherized gas furnaces, which would allow manufacturers to take advantage of high-volume material pricing. Thus, the incremental costs of increasing from the baseline to an 83-percent AFUE were only \$30. (See NOPR TSD Chapter 6.) In light of the comments, DOE revised the cost model to include heat exchangers made of AL 29-4C at these two AFUE levels and included the cost of a condensate disposal system that could function at below-freezing temperatures. DOE

specifically reviewed the costs that GAMA submitted and, based on information obtained during manufacturing interviews and internal engineering expertise, DOE believes GAMA's estimates are within the range of possible manufacturing costs for these systems (see Chapter 6 of the final rule TSD). Therefore, DOE conducted analysis at both the low and high points of the cost range (*i.e.*, \$78 and \$320, respectively). DOE examined both the low and high scenarios using the LCC spreadsheet and presented the results in Chapter 8 of the final rule TSD.

Ultimately, DOE used the low-cost scenario as the basis for the analysis because DOE's estimates corresponded more closely to the low-range cost that GAMA provided (*i.e.*, \$78). However, DOE recognizes that some installations may incur a higher cost. DOE believes inclusion of stainless steel heat exchanger and condensate removal component costs takes into account manufacturer longevity and safety concerns associated with near-condensing weatherized gas furnaces.

DOE did not include the cost of stainless steel heat exchangers for weatherized gas furnaces at 81-percent AFUE. Given the presence of 81-percent AFUE products in the marketplace that do not contain stainless steel heat exchangers, DOE assumed that only units with an AFUE of 82 percent and 83 percent would need stainless steel heat exchangers to prevent corrosion.

Burnham and GAMA commented that DOE neglected to consider the costs associated with adding induced-draft technology to a Category III gas-fired boiler at 84-percent AFUE and above. Burnham further stated that some 84-percent AFUE boilers are natural draft with draft hoods, vent dampers, and electronic ignition, and some are induced draft with either Category I or Category III venting, depending on the manufacturer's requirements in a given installation. In its comments on the October 2006 proposed rule, Burnham pointed out that DOE estimated that 24 percent of installations at 84-percent AFUE would be Category III, and this percentage represents a partial transformation of the baseline boiler market. However, although DOE included the costs associated with Category III special gas vents, Burnham noted that all Category III installations are induced-draft boilers, and that DOE neglected the costs associated with adding induced-draft technology to the boiler. (Public Meeting Transcript, No. 107.6 at p. 42; Burnham, No. 99 at p. 4) Burnham also predicted that, to avoid the venting risks associated with installing natural draft 84-percent AFUE

boilers in every installation, all boiler installations at 84-percent AFUE will become induced-draft, and most or all of those will require Category III venting. Burnham urged DOE to apply the costs associated with adding induced-draft technology to all Category III installations. (Public Meeting Transcript, No. 107.6 at p. 42; Burnham, No. 99 at p. 4)

GAMA commented that additional concerns regarding venting safety would require manufacturers to reconsider the application and installation guidelines if the minimum standards for gas-fired boilers were set at 84-percent AFUE. GAMA noted that atmospheric units cost less and meet certain customers' requirements, but they can only be installed in a subset of locations due to venting limitations. At 84-percent AFUE, GAMA commented these gas-fired boilers would be operating at near-condensing conditions, which would lead to potential venting corrosion. GAMA stated that it has been told by its members that concern for safety and reliability would force manufacturers to specify AL 29-4C stainless steel chimney liners and vent connectors in all Category I installations. GAMA estimated the cost of this change to 100-percent stainless steel venting to be roughly \$700 to \$900. GAMA stated that manufacturers desiring an additional margin of safety might eliminate natural draft products from their product lines completely in favor of induced-draft units. (GAMA, No. 116 at p. 11)

GAMA stated that safety concerns would force manufacturers to specify Category II or III stainless steel venting systems in some gas boiler installations. GAMA stated its belief that DOE's projections for venting consequences of 86-percent and 85-percent-AFUE gas-fired boilers would actually occur at 84-percent and 83-percent AFUE. GAMA further commented that 84-percent-AFUE gas-fired boilers would require 100 percent stainless steel venting. GAMA surveyed its boiler manufacturer members regarding the additional cost of incorporating induced-draft technology and provided DOE with the resulting cost estimates, ranging between \$108.75 and \$145.75. (GAMA, No. 116 at pp. 10-11)

In response to the comments from Burnham and GAMA, DOE revised the cost model for gas-fired boilers and added the cost of induced-draft technology to the fraction of Category III boilers assumed for each AFUE level. In other words, DOE applied the cost of induced-draft technology to the 24 percent of installations requiring Category III venting at 84-percent AFUE. DOE agrees with stakeholders that

induced-draft technology is likely required for the population of installations using Category III venting. DOE specifically reviewed the costs that GAMA submitted and, based on information obtained during manufacturing interviews and internal engineering expertise, DOE believes GAMA's estimates are within the range of possible manufacturing costs for these systems. Therefore, DOE conducted analyses at both the low and high points of the cost range (i.e., \$108.75 and \$145.75, respectively). DOE used the low and high scenarios as inputs to the LCC model; the results are presented in Chapter 6 of the final rule TSD.

DOE did not revise its estimates of the fraction of installations requiring Category III venting and induced-draft technology from that relied upon in October 2006 proposed rule. In other words, DOE did not apply the added cost to the entire population of gas-fired boilers at 84-percent AFUE and above, as both Burnham and GAMA suggested. DOE relied on the survey data of actual installations requiring Category III venting that GAMA originally supplied. GAMA and Burnham did not provide any additional survey data to validate

their claim that all boilers at 84-percent AFUE and above would require Category III venting and induced-draft technology. DOE acknowledges Burnham's and GAMA's assertions of safety concerns relating to venting systems failure at 84-percent AFUE and above, and considered this issue for a standard level for gas-fired boilers.

B. Life-Cycle Cost and Payback Period Analyses

The purpose of the LCC and PBP analyses was to evaluate the economic impacts of possible new furnace and boiler energy conservation standards on individual consumers. The LCC is the total consumer expense over the life of the furnace or boiler, including purchase and installation expense and operating costs (energy expenditures and maintenance costs). The PBP is the number of years it would take for the consumer to recover the increased costs of a higher-efficiency product through energy savings. As discussed in the NOPR, the LCC and PBP analyses calculated furnace and boiler energy consumption under field conditions for a representative sample of housing units. 71 FR 59219–59220. To compute LCCs, DOE discounted future operating costs to the time of purchase and

summed them over the lifetime of the furnace or boiler. DOE measured the change in LCC and the change in PBP associated with a given efficiency level relative to a base case forecast of equipment efficiency. The base case forecast reflects the market in the absence of amended mandatory energy conservation standards.

As part of the LCC and PBP analyses, DOE developed data that it used to establish equipment prices, installation costs, annual household energy consumption, marginal natural gas and electricity prices, maintenance and repair costs, equipment lifetime, and discount rates. Chapter 8 of the TSD contains detailed discussion of the methodology followed for the LCC and PBP analyses.

In response to the publication of the proposed rule, DOE received several comments on the LCC and PBP methodology. In response to these comments, DOE made several changes in its approach. Table IV.2 summarizes the approaches and data DOE used to derive the inputs to the LCC and PBP calculations for the NOPR, and the changes it made for today's final rule. Discussion of the inputs and the changes follows in the sections below.

TABLE IV.2.—SUMMARY OF INPUTS AND KEY ASSUMPTIONS USED IN THE LIFE-CYCLE COST AND PAYBACK PERIOD ANALYSES

Inputs	NOPR analysis	Final rule analysis
<i>Affecting Installed Costs</i>		
Equipment Price	Derived by multiplying manufacturer cost by manufacturer, distributor, contractor, and builder markups and sales tax, as appropriate.	Same method, using average materials prices for the period 2002–2006. For weatherized gas furnaces, assumed stainless steel heat exchanger for 82% and 83% AFUE. For gas boilers, assumed that furnaces that require Category III venting incorporate a draft inducer.
Installation Cost	Used a distribution of weighted-average installation costs from the Installation Model. Weight-averaged installation configuration by frequency of occurrence in the field.	No change.
<i>Affecting Operating Costs</i>		
Maintenance and Repair Costs.	Used Gas Research Institute data for gas furnaces and boilers, water heater rulemaking survey results for oil-fired equipment, and data from the 1993 rulemaking for mobile home furnaces. Supplemented with information that indicates higher maintenance frequency for modulating equipment, and identical maintenance costs for condensing and non-condensing equipment. Did not include repair costs.	Same sources for maintenance costs. Included repair costs for gas-fired equipment.
Annual Heating Load	Calculated heating loads using 2001 Residential Energy Consumption Survey (RECS) data (cooling loads not considered). Incorporated adjustment to account for change in new home size and shell performance between 2001 and 2015.	No change.
Annual Energy Use	Used 26 virtual models that captured the range of common furnace sizes. Energy calculations used annual heating load for each housing unit based on RECS 2001.	No change.

TABLE IV.2.—SUMMARY OF INPUTS AND KEY ASSUMPTIONS USED IN THE LIFE-CYCLE COST AND PAYBACK PERIOD ANALYSES—Continued

Inputs	NOPR analysis	Final rule analysis
Energy Prices	Calculated 2001 average and marginal energy prices for each sample house. Used AEO2005 forecasts to estimate future average and marginal energy prices.	Same method, using AEO2007 forecasts to estimate future average and marginal energy prices.
<i>Affecting Present Value of Annual Operating Cost Savings</i>		
Lifetime	Used 2001.58(9) Appliance Magazine survey results, except for boilers, for which DOE developed new estimates based on a literature review.	No change.
Discount Rate	Applied data from 1998 and 2001 Survey of Consumer Finances and other sources to estimate a discount rate for each house.	Same sources, using additional data from 1989, 1992, 1995, and 2004 Survey of Consumer Finances. (See TSD, Chapter 8).

The changes in the approach for estimating the equipment prices are discussed in Chapter 6 of the TSD.

In the October 2006 proposed rule analysis, DOE assumed that maintenance costs would not vary with the AFUE level of furnaces and boilers. Several stakeholders commented that DOE should apply a higher maintenance cost for condensing gas furnaces than for non-condensing equipment. (Carrier, No. 100 at p. 3; Public Meeting Transcript, No. 107.6 at p. 57; GAMA, No. 116 at p. 5; Rheem, No. 138 at p. 3)

In its analysis for today’s final rule, DOE included repair costs for gas furnaces and boilers. The repair cost is the cost to the consumer for replacing or repairing components that have failed in the space-conditioning equipment, while the maintenance cost is a regular expense. Since representative data on repair costs were not available, DOE used the same approach as in the 2001 Central Air Conditioner standards rulemaking (67 FR 36383) and assumed that annualized repair costs are equal to one-half the equipment price divided by the average lifetime. Since the equipment cost is higher for equipment that contains more sophisticated mechanical or electronic components, such as condensing furnaces, DOE applied a higher repair cost for these products. Since all gas equipment components are fully covered by a manufacturer warranty for five years, DOE assumed that consumers would not incur any repair costs in the first five years. As a conservative assumption, DOE applied the annualized cost beginning in the sixth year and ending in the last year of service for the equipment.

For oil-fired furnaces and boilers, DOE included an annual maintenance contract, which typically includes repair of failed components. Therefore, DOE did not include a separate repair cost for these products.

DOE defines the equipment lifetime as the age at which a furnace or boiler is retired from service. The American Council for an Energy-Efficient Economy (ACEEE) commented that DOE’s equipment lifetime estimate for oil-fired furnaces should be 18 years rather than 15 years, which DOE assumed in the NOPR analysis. (ACEEE, No. 120 at p. 10) DOE based the assumed lifetime of 15 years from *Appliance Magazine*, which reports data provided by furnace manufacturers. ACEEE did not provide data to substantiate the 18-year lifetime. Thus, DOE did not change its assumption about equipment lifetime for oil-fired furnaces.

As it has done in previous rulemakings, DOE derived the discount rates for the LCC analysis from estimates of the finance cost to purchase a furnace or boiler. The Natural Resources Defense Council (NRDC) commented that DOE’s decision to use consumer-borrowing rates as a basis for consumer discount rates in the LCC analysis is flawed. (NRDC, No. 63 at p. 12) Consistent with financial theory, the finance cost of raising funds to purchase appliances can be interpreted as: (1) The financial cost of any debt incurred to purchase products, or (2) the opportunity cost of equity used to purchase equipment. DOE used both of these interpretations in estimating discount rates for the LCC analysis for furnaces and boilers. For the NOPR analysis, DOE used data from the Federal Reserve Board’s 1998 and 2001

Survey of Consumer Finances (SCF). 71 FR 59233. For the analysis in today’s final rule, DOE expanded the data to include the 1989, 1992, 1995, and 2004 SCF. These additional data on consumer finances represent a wide range of economic conditions affecting consumer behavior. Thus, DOE decided to continue to use consumer-borrowing rates as a suitable basis for consumer discount rates in the LCC analysis.

C. National Impact Analysis

The purpose of the national impact analysis (NIA) was to evaluate the energy and economic impacts of possible new furnace and boiler energy conservation standards at the national level. As discussed in the NOPR, DOE calculated the NES and the NPV of total customer costs and savings expected to result from new standards at specific efficiency levels. 71 FR 59224–59228. Table IV.3 summarizes the approach and data DOE used to derive the inputs to the shipments analysis for the NOPR, and the changes it made in the analysis for final rule. In the analysis for the NOPR, DOE analyzed fuel switching only in the new construction market. For this final rule, DOE also analyzed fuel switching in the replacement market, using the same method as for the new construction market. This change results in a larger drop in shipments of non-weatherized gas furnaces at higher efficiency levels than reported in the NOPR. As part of the MIA, furnace manufacturers provided a shipments scenario (i.e., the manufacturers’ shipments scenario) that shows significantly greater decreases in gas furnace shipments with a standard at condensing levels (see section E, below).

TABLE IV.3.—APPROACH AND DATA USED TO DERIVE THE INPUTS TO THE SHIPMENTS ANALYSIS

Input	NOPR analysis	Final rule analysis
Shipments	Calculated total shipments for replacements based on past shipments and retirement function, and for new homes based on projection of new housing from (AEO)2005. The projected market shares in new homes were a function of relative heating equipment prices. Based conversions-upon-replacement on historic survey data. Model used two additional shipment categories to calibrate with GAMA data. Included shipments for mobile home furnace replacement.	Same approach as NOPR, with projection of new housing updated to AEO2007.
Replacements in Kind	Replacement of worn-out heating equipment with unit of same equipment type (i.e., furnace or boiler) and same fuel. Applied a replacement probability distribution based on equipment lifetime.	Same approach as NOPR, except for non-weatherized gas furnaces, for which DOE modeled fuel switching in the replacement market according to energy and equipment price trends, using same method and data as for installations in new housing.
Conversions	Replacement of worn-out heating equipment with equipment using a different fuel. Based on utility surveys conducted by American Gas Association that report the numbers of households that converted from oil or electricity to natural gas space heating.	No change.
Installations in New Housing	Installation of heating equipment into new single-family, multi-family, or mobile homes according to construction rates and equipment type market shares. Used housing completions according to AEO forecast and modeled fuel market shares according to energy and equipment price trends.	No change.
Gas Furnace Early Replacement.	Early replacement of non-condensing furnaces with more-efficient condensing furnaces. Model calibrated to GAMA data, which show a large increase in condensing furnace shipments in response to rising natural gas prices.	No change.
Conversion from Non-Central Gas Heating to Central Heating with a Gas Furnace.	Conversion from non-central gas heating to central heating with a gas furnace. Model used Residential Energy Consumption Survey data, which show a large increase between 1993 and 2001 in homes with central gas heating that were built before 1990.	No change.

In its assessment of fuel switching from gas to electric heating, DOE estimated that heat pumps and electric resistance furnaces would have the same market shares. The Appliance Standards Awareness Project (ASAP), GAMA, Nordyne, the Northeast Power Coordinating Council, and Rheem commented that market shares might change over the analysis period. (Public

Meeting Transcript, No. 107.6 at p. 96; Public Meeting Transcript, No. 107.6 at p. 96; public Meeting Transcript, No. 107.6 at p. 98; Public Meeting Transcript, No. 107.6 at p. 97; Rheem, No. 101 at p. 2) DOE reviewed the projections of heating equipment market shares in EIA's AEO2007, and found that EIA's projections show little change in the national market shares of heat

pumps and electric resistance furnaces until 2030. Thus, DOE believes that its assumption of constant market shares is reasonable.

Table IV.4 summarizes the approach and data DOE used to derive the inputs to the NES and NPV analyses for the NOPR, and the changes it made in the analyses for this final rule.

TABLE IV.4.—APPROACH AND DATA USED TO DERIVE THE INPUTS TO THE NATIONAL ENERGY SAVINGS AND NET PRESENT VALUE ANALYSES

Input	NOPR analysis	Final rule analysis
Shipments	Annual shipments from shipments model	See Table IV.3.
Date Products Must Meet Standard.	2015	No change.
Annual Unit Energy Consumption (UEC).	Annual weighted-average values were a function of efficiency level. Base case UEC for non-weatherized gas furnaces accounted for projected share of condensing furnaces.	No change.
Installed Cost per Unit	Annual weighted-average values were a function of efficiency level (established from the LCC analysis).	No change.
Maintenance Cost per Unit ..	Annual weighted-average values were a function of efficiency level (established from the LCC analysis).	No change.
Energy Prices	AEO2005 forecasts to 2025 and extrapolation beyond 2025.	AEO2007 forecasts to 2030 and extrapolation beyond 2030.
Energy Site-to-Source Conversion.	Generated by DOE/EIA's NEMS includes electric generation, transmission, and distribution losses.	No change.

TABLE IV.4.—APPROACH AND DATA USED TO DERIVE THE INPUTS TO THE NATIONAL ENERGY SAVINGS AND NET PRESENT VALUE ANALYSES—Continued

Input	NOPR analysis	Final rule analysis
Discount Rate	7-percent and 3-percent real	No change.
Present Year	Future expenses discounted to year 2004	Future expenses discounted to year 2006.

The NPV calculation for the October 2006 proposed rule used marginal energy prices to value energy savings for natural gas and electricity, and average energy prices to value energy savings for fuel oil and liquefied petroleum gas (LPG) from AEO2005. 71 FR 59227. ACEEE commented that DOE should use the AEO2007 price forecast in its analysis for the final rule. (ACEEE, No. 120 at p. 10) DOE used energy price projections from AEO2007 (which ends in 2030) in its analysis for the final rule. For the years after 2030, DOE applied the average annual growth rate in 2020–2030, except for heating oil prices, for which DOE applied the average annual growth rate in 2015–2030. The above approach follows guidance provided by EIA.⁵

To discount future impacts, DOE used discount rates of both seven percent and three percent, in accordance with the Office of Management and Budget (OMB)’s guidelines contained in Circular A–4, Regulatory Analysis, September 17, 2003. (OMB Circular A–4, § E (September 17, 2003)). NRDC commented that DOE should rely exclusively on a three-percent discount rate in making determinations about the economic value of prospective standards, in part because investments in energy efficiency reduce overall societal risk. (NRDC, No. 131 at p. 16) As mentioned above, OMB recommends using discount rates of both seven percent and three percent for regulatory analysis. DOE concluded that both seven percent and three percent are appropriate to use because they reflect a broad range of discount rates at a national level.

D. Consumer Subgroup Analysis

In analyzing the potential consumer impact of new or amended standards, DOE evaluates the impact on identifiable groups of consumers (i.e., subgroups) that may be disproportionately affected by a new national standard level. For this rulemaking, DOE analyzed the potential effect of standards on households with low income levels and households occupied by seniors, two consumer

subgroups of interest. (See TSD, Chapter 11.)

For today’s final rule, DOE also analyzed the impact of standards for non-weatherized gas furnaces on households located in northern and southern regions. DOE defined the southern region as comprising states with an average of less than 5,000 heating degree-days (HDD)⁶, and the northern region as comprising states with an average of more than 5,000 HDD. DOE also performed an analysis using a definition of the southern region as comprising states with an average of less than 6,000 HDD and a definition of the northern region as comprising states with an average of more than 6,000 HDD. See TSD Chapter 11 for a listing of the states included in each grouping.

E. Manufacturer Impact Analysis

In determining whether a standard for a covered product is economically justified, the Secretary of Energy is required to consider in part “the economic impact of the standard on the manufacturers and on the consumers of the products subject to such standard.” (42 U.S.C. 6295(o)(2)(B)(i)(I)) EPCA also requires for an assessment of the impact of any lessening of competition as determined by the Attorney General. (42 U.S.C. 6295(o)(2)(B)(i)(V)) DOE performed the MIA to estimate the financial impact of efficiency standards on the residential furnace and boiler industry and to assess the impact of such standards on employment and manufacturing capacity, and published the results in the October 2006 NOPR. 71 FR 59228–59232, 59240–59245. For this final rule, DOE did not introduce changes to the methodology as described in the October 2006 NOPR, but did update the manufacturers’ shipments scenario based on the updated NIA results. (See TSD, Chapter 12.)

F. Employment Impact Analysis

The Process Rule includes employment impacts among the factors DOE considers in selecting a proposed standard. Employment impacts include

direct and indirect impacts. Direct employment impacts are any changes in the number of employees for furnace and boiler manufacturers. Indirect impacts are those changes of employment in the larger economy that occur due to the shift in expenditures and capital investment that is caused by the purchase and operation of more efficient furnace and boiler equipment. The MIA addresses direct employment impacts; the employment impact analysis describes indirect impacts.

For today’s final rule, DOE estimated indirect national employment impacts using a model of the U.S. economy called IMBUILD (impact of building energy efficiency programs). DOE’s Office of Building Technology, State, and Community Programs (now the Building Technologies Program) developed the model. IMBUILD is a personal-computer-based, economic-analysis model that characterizes the relationships among 35 sectors of the economy using national input/output structural matrices, and data from the U.S. Bureau of Labor Statistics (BLS). The IMBUILD model estimates changes in employment, industry output, and wage income in the overall economy of the United States resulting from changes in expenditures in the various sectors of the economy.

In comments on the proposed rule, NRDC stated that DOE failed to consider the economic value of increased employment at TSL 4. (NRDC, No. 131 at p. 12) DOE takes employment impacts into account without quantifying the net economic value of such impacts. While both the IMBUILD input/output model and the direct use of BLS employment data suggest the proposed furnace and boiler standards could increase the net demand for labor in the economy, DOE believes the gains would most likely be very small relative to total national employment. DOE, therefore, concludes only that the furnace and boiler standards are likely to produce employment benefits that are sufficient to offset any adverse impacts on employment in the furnace and boiler or energy industries. (See TSD, Chapter 14.)

G. Regulatory Impact Analysis

The regulatory impact analysis provides a description and analysis of

⁵Memorandum about Energy Price Projections for Federal LCC Analysis, Attachment 2, EIA/DOE, 2/10/2006.

⁶HDDs are quantitative indices demonstrated to reflect demand for energy to heat residential buildings. These indices are derived from daily temperature observations.

the feasible policy alternatives to this regulation and a quantitative comparison of the impacts of the alternatives. In this analysis, DOE also investigated the impact of standards on northern and southern regions. DOE used the NIA spreadsheet, which uses inputs generated by LCC spreadsheets constructed to separately analyze the northern and southern regions, to generate the results presented in the NOPR for both regions. DOE performed the national LCC analysis on the basis of the nine Census divisions, plus four large States (New York, California, Texas, and Florida), rather than on a State-by-State basis. Commenting on the NOPR, ASAP stated that the results for the northern region, defined as areas with more than 6,000 HDDs, appear to be incorrect. (Public Meeting Transcript, No. 107.6 at p. 154)

For the NOPR analysis of the potential impacts of regional standards, DOE based the distribution of furnace efficiency in the base case on data that GAMA provided on the percentage of condensing furnace sales in each State. DOE combined the State-level GAMA data into Census divisions, and then assumed condensing gas furnaces were installed in households solely on the basis of climate (i.e., high HDDs). This assumption led to the comparatively small energy savings estimated to result from a condensing-level standard for the northern region.

Upon review, DOE determined that the assumption that the existing (and future) market for condensing furnaces (absent a standard) was likely to be concentrated in the coldest states was not an accurate reflection of the State-level data that GAMA provided. By using distribution assumptions that are based on the State-level data, DOE subsequently developed an alternative analysis, which it now believes is a better indicator of the energy savings likely to result in specified regions from various standard levels. In the revised analysis, a much lower percentage (45 percent) of households in the States with HDDs of 6,000 or higher is assigned condensing furnaces. This share is half of the comparable 90 percent value in the NOPR analysis and is close to the 48 percent share of condensing furnaces for the 20 States with an average HDD of 6,000 or higher in the GAMA shipments data. See Appendix V of the TSD for further discussion.

H. Utility Impact Analysis

The utility impact analysis estimates the change in the forecasted power generation capacity for the Nation. This analysis separately determines the

changes in energy supply and demand as a result of natural gas, fuel oil, LPG, or electricity residential consumption savings due to the standard. DOE calculated these changes using the NEMS-BT computer model.⁷ The analysis output provides a forecast for the needed generation capacities at each TSL. The estimated net benefit of the standard is the difference between the generation capacities forecasted by NEMS-BT and the *AEO2006* Reference Case.

DOE obtained the energy savings inputs associated with electricity and natural gas consumption savings from the NES analysis. These inputs reflect the effects of efficiency improvement on furnace energy consumption, including both fuel (natural gas, fuel oil, and LPG) and electricity. The inputs also reflect the impacts associated with the market shift from natural gas heating to electric heating projected to occur at TSLs that result in an increased installed cost for gas furnaces. See Chapter 13 of the TSD for further discussion.

The American Gas Association (AGA) stated that DOE's approach for analyzing utility impacts, and in particular its evaluation of market shifts from gas to electric heating equipment, does not adequately account for impacts on gas utilities. (AGA, No. 137 at p. 6) Historically, DOE's approach for the utility impact analysis has been to only evaluate the impact of market shifts associated with standards on utility energy sales. DOE has not been able to characterize what the impacts of standards would be on gas utilities, other than the financial impacts as measured by sales. Thus, DOE was not able to perform further evaluation of the gas utility impacts for the furnace and boiler standards rulemaking.

I. Environmental Analysis

Under 42 U.S.C. 6295(o)(2)(B)(i)(VI), DOE estimated the environmental impacts of the standards established in today's final rule. DOE estimated direct emissions impacts at the household level as well as impacts on power plant emissions. While DOE regulating furnace and boiler electricity use, the electricity consumption of these appliances affects power plant emissions. As discussed in the NOPR, DOE calculated the reduction in power plant emissions of CO₂ and NO_x using

⁷ NEMS, which is available in the public domain, is a large, multi-sectoral, partial-equilibrium model of the U.S. energy sector. The EIA uses NEMS to produce its AEO—a widely recognized baseline energy forecast for the U.S. DOE used a variant known as NEMS-BT.

the NEMS-BT computer model.⁸ DOE does not report estimated reduction in power plant emissions of SO₂ because any such reduction resulting from an efficiency standard would not affect the overall level of SO₂ emissions in the U.S.⁹

The operation of most furnaces and boilers requires use of fossil fuels, and results in household emissions of CO₂, NO_x, and SO₂ at the sites where appliances are used. NEMS-BT provides no means for estimating such household emissions, so DOE calculated separate estimates of the effect of the standards on household emissions of CO₂, NO_x, and SO₂, based on emissions factors derived from the literature. DOE reports household SO₂ emissions savings, because the SO₂ emissions caps do not apply to household emissions.

The operation of furnaces and boilers requires use of fossil fuels, and results in household emissions of CO₂, NO_x, and SO₂ at the sites where appliances are used. NEMS-BT provides no means for estimating such household emissions, so DOE calculated separate estimates of the effect of the standards on household emissions of CO₂, NO_x, and SO₂, based on emissions factors derived from the literature. DOE reports household SO₂ emissions savings, because SO₂ emissions caps do not apply to household emissions.

NRDC and Dow Chemical commented that, although DOE had quantified emissions savings, it failed to put an economic value on them. (NRDC, No.

⁸ Power sector NO_x emissions impacts will be affected by the Clean Air Interstate Rule (CAIR), which the U.S. Environmental Protection Agency (EPA) issued on March 10, 2005. CAIR will permanently cap emissions of NO_x in 28 eastern States and the District of Columbia. 70 FR 25162 (May 12, 2005). As with SO₂ emissions, a cap on NO_x emissions means that equipment efficiency standards may result in no physical effects on these emissions. When NO_x emissions are subject to emissions caps, DOE's emissions reduction estimate corresponds to incremental changes in emissions allowance credits in cap-and-trade emissions markets rather than physical emissions reductions. Therefore, while the emissions cap may not result in physical emissions reduction from the proposed standards, it does produce an environment-related economic benefit in the form of emissions allowance credits.

⁹ The Clean Air Act Amendments of 1990 set an SO₂ emissions cap on all power generation. The attainment of this target is flexible among generators and is enforced through the use of emissions allowances and tradable permits. Accurate simulation of SO₂ trading implies that the effect of efficiency standards on physical emissions will be near zero because emissions will always be at or near the allowed ceiling. However, although there may not be an environmental benefit from reduced SO₂ emissions from electricity savings, there still may be an economic benefit. Electricity savings can decrease the need to purchase or produce SO₂ emissions allowance credits, which decreases the costs of complying with regulatory caps on emissions.

131 at p. 13; NRDC and Dow Chemical, No. 132 at p. 9) In keeping with the guidance of the 1996 Process Rule, DOE's analysis of the environmental impacts of standards included estimated impacts on emission of carbon and relevant criteria pollutants. 61 FR 36983 (July 15, 1996). For the purpose of promulgating new standard levels for furnaces and boilers, DOE considers the potential changes to physical emission resulting from new standards. The detailed environmental analysis is part of the TSD.

V. Discussion of Other Comments

Since DOE opened the docket for this rulemaking, it received more than 150 comments from a diverse set of parties, including manufacturers and their representatives, States, energy conservation advocates, consumer advocates, and utilities. Comments regarding the analytic methodologies DOE used are discussed in section IV of this preamble. Other comments addressed the burdens and benefits associated with new energy efficiency standards, the information DOE used in its analyses, results of and inferences drawn from the analyses, impacts of standards, the merits of the different TSLs DOE considered, other issues affecting adoption of standards for residential furnaces and boilers, and the DOE rulemaking process. DOE addressed the comments raised regarding the ANOPR in the October 2006 NOPR. Comments received on the October 2006 proposed rule are addressed below.

A. Information and Assumptions Used in Analyses

As a basis for analysis for this final rule, DOE has continued to use the types of data as explained in the October 2006 NOPR. 71 FR 59213–59234. For the final rule, DOE revised some inputs and expanded some of the data sources in response to stakeholder comments on the October 2006 proposed rule. These revisions are discussed below.

1. Engineering Analysis

In the October 2006 proposed rule analyses, DOE used a five-year average of materials prices from years 2000 through 2004. 71 FR 59216. For the final rule, DOE revised the material price averages used in the cost model to include material price data from 2005 and 2006. For this rulemaking, DOE believes a five-year span is the longest span that would still provide appropriate weighting to current prices experienced in the market. DOE calculated a new five-year average

materials price for cold rolled steel, aluminumized steel, galvanized steel, painted cold rolled steel, and stainless steel. DOE used the BLS Producer Price Indices (PPIs) for cold rolled steel and stainless steel spanning from 2002 to 2006 to calculate new averages, which incorporate the changes within each material industry and inflation. Finally, DOE adjusted all averages to 2006\$ using the gross-domestic-product implicit-price deflator.

As was the case for the October 2006 proposed rule, DOE created two scenarios for the material-price-sensitivity analysis: a low-bound and a high-bound scenario. DOE calculated the low-bound scenario by finding the year ranging between 2002 and 2006 with the lowest cost of cold rolled steel, which was 2002. DOE then used the annual prices for all other materials in 2002 and applied a 15-percent reduction to each of the raw material costs. Likewise, DOE calculated the high-bound scenario using the annual average price for each of the raw materials from 2006, when prices of raw materials were uncharacteristically high. DOE expressed both the low-bound scenario and the high-bound scenario in 2006\$. DOE evaluated the results of the material-price-sensitivity analysis, using all three material-cost scenarios, in the engineering analysis and then used them as inputs for the LCC analysis. The results for the material-price-sensitivity analysis are presented in Appendix Z of the final rule TSD.

GAMA commented that DOE's analysis for non-weatherized gas furnaces appears to be in error, especially as related to the 81-percent AFUE option, for several reasons. First, while DOE estimated in the October 2006 NOPR that eight percent of non-weatherized gas furnace installations would require Category III venting at 81-percent AFUE, GAMA stated that this number is too low. Second, DOE concluded in the October 2006 NOPR that a significant fraction of the replacement installations will require a Type B vent connector, but GAMA pointed out that DOE only added the additional costs for these connectors to 40 percent of the installations. Lastly, GAMA stated its belief that the number of horizontal venting configurations assumed in the October 2006 NOPR analyses is too low.

Regarding GAMA's first point, DOE used the approach described by GAMA in the ANOPR analysis. For the NOPR, DOE determined that non-weatherized gas furnaces at 81-percent AFUE when applied in vertical venting installations fall into Category I. To GAMA's second

point, DOE accounted for the cost of Type-B double-wall vent connectors for all replacement installations. GAMA appears to be referring to the fraction of existing models that already have a double walled vent connector in DOE's Installation Model, which was approximately 40 percent as discussed in the NOPR. To GAMA's last point regarding the number of horizontal venting configurations, DOE's October 2006 proposed rule analysis based the number of non-condensing horizontal vent configurations on the Gas Research Institute's venting survey (see NOPR TSD Chapter 6). DOE then verified this percentage in consultations with installers. Consequently, DOE did not revise the number of horizontal venting configurations for today's final rule.

2. Life-Cycle Cost Analysis

The base case forecasts equipment that consumers are expected to purchase in the absence of new standards. In the NOPR analysis, DOE assigned gas furnaces to sampled housing units in the base case to reflect the trend toward a higher market share for condensing furnaces, as shown in shipments data through 2003, which GAMA provided. DOE also based the projected market share of condensing furnaces in 2015 on an evaluation of the correlation between condensing furnace market share and the natural gas price for the 1990–2003 period, projected natural gas prices from *AEO2005*, and market factors that could sustain the condensing furnace market share even with a lower gas price. The projected condensing furnace market share for 2015 was 35.6 percent. Therefore, for the LCC analysis base case, DOE assigned condensing furnaces to 35.6 percent of the sampled housing units with non-weatherized gas furnaces.

GAMA stated the market share for condensing furnaces might continue to grow because of growth in the replacement market, and thus DOE's assumption may be low. (Public Meeting Transcript, No. 107.6 at p. 105) Lennox commented that the market share for condensing furnaces should consider the replacement market. (Public Meeting Transcript, No. 107.6 at p. 105) Rheem disagreed with DOE's estimate of market share for condensing furnaces, and stated that the share will be higher if historic trends continue. (Rheem, No. 138 at p. 5) ACEEE stated that the market share for condensing furnaces will depend on the price of natural gas and that DOE's assumptions should be internally consistent and reflect the price projections it uses. (Public Meeting Transcript, No. 107.6 at p. 102) DOE found that the empirical,

national-level data strongly support a correlation between condensing furnace market share and the natural gas price. The natural gas projections DOE used in this rulemaking (*AEO2007*) forecast that the national-average natural gas price in the period to 2015 does not exceed the recent level of prices. The condensing furnace market share in 2005 was approximately 35 percent. DOE determined that its assumption of a market share of 35.6 percent in 2015 reflects the empirical correlation.

3. Manufacturer Impact Analysis

NRDC stated that DOE's assessment of the impact of TSL 4 on manufacturers is flawed because a decline in sales of furnaces associated with TSL 4 would result in increased sales of heat pumps, many of which are sold by the furnace manufacturers. (NRDC, No. 131 at p. 14) Pacific Gas and Electric (PG&E) also commented that DOE's analysis overstates the deleterious effect of TSL 4 on INPV. PG&E commented that experience with other standards has shown that the costs and competitiveness difficulties presented by improved energy efficiency standards are less burdensome in implementation than initially projected. (PG&E, No. 129 at p. 1)

While some larger manufacturers of furnaces and boilers sell both heat pumps and furnaces, DOE is tasked with assessing the impacts of increased efficiency standards on furnace and boiler manufacturers, not on the heating, ventilation, and air-conditioning industry as a whole. In the furnace and air conditioner businesses, some manufacturers produce both types of products, switching primarily to furnaces in the winter and air conditioners in the summer. Heat pumps, on the other hand, tend to be manufactured in other manufacturing facilities. For the large production volume shifts found for TSL 4, DOE determined that the furnace divisions of large companies likely will be impacted as analyzed in the October 2006 proposed rule MIA. The capital (equipment) and labor (location) in a manufacturing facility cannot easily be transformed from manufacturing furnaces to manufacturing heat pumps. For small companies, which focus on fewer types of product lines, the material costs are less interchangeable. DOE also notes that, under TSL 4, other options—such as electric furnaces—become a choice for consumers. In light of these uncertainties, DOE determined that its MIA captures the potential range of impacts at TSL 4 on furnace manufacturers.

NRDC commented that, in determining industry value, DOE should not give equal weight to scenarios of product sales created by DOE and those provided by manufacturers. (NRDC, No. 131 at pp. 14–15) DOE looked at a range of impacts for each of the six product classes of furnaces and boilers and presented this entire range of results in the October 2006 NOPR. In doing so, DOE used both the NES shipments projections and the manufacturers' shipments scenario to assess the range of impacts on the industry value at each TSL. Although this final rule presents results using both shipments scenarios for the MIA, DOE only used the NES shipments scenario to assess the impacts on the Nation in the NIA.

NRDC stated its belief that DOE's assumptions regarding markups biased the INPV result. (NRDC, No. 131 at pp. 14–15) NRDC also questioned DOE's assumption that the industry cost structure will not decrease. NRDC stated that manufacturers could distinguish value-added products in the mid-90s AFUE range based on modulating capacity and continue to collect higher markups on above-standard products. NRDC further stated that, as manufacturers gain more experience with 90-percent AFUE products, the price of the products will come down; it requested that the cost structure in DOE's analysis account for this. (NRDC, No. 131 at pp. 14–15)

With regard to markups, DOE considered up to four distinct markup scenarios to bound the range of expected product prices following standards. For each product class, DOE used the markup scenarios that characterize the markup conditions described by manufacturers, and that reflect the type of market responses manufacturers expect as a result of standards. Details of the markup scenarios by product class were presented in the October 2006 NOPR. 71 FR 59240. DOE has determined that these scenarios capture the range of variability within the furnace and boiler industry.

As to NRDC's point on the industry cost structure, for condensing, non-weatherized gas furnaces that are already made in high volumes in an industry with decades of manufacturer experience, the potential cost of innovation prompted by higher standards is limited to that of an already mature industry. DOE recognizes that manufacturers' continuous improvement programs will continue to reduce future costs, with or without increased efficiency standards. DOE believes these programs are not a result of energy conservation standard

rulemakings and are not appropriate to consider when estimating the impacts of energy conservation standards. DOE estimated the manufacturing cost of a condensing furnace to be \$422.85 in the engineering analysis and DOE recognizes these costs could be reduced in a standards case scenario. Therefore, the MIA analysis excludes this effect, and shows a range of impacts on the industry results from an amended standard.

Rheem stated that DOE's assessment of impacts on manufacturers is inadequate with respect to domestic manufacturing employment, capacity, plant closures, and loss of capital investment. Rheem commented that domestic manufacturing of refrigerators has declined substantially as a result of three energy standards and the phaseout of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), since manufacturers have chosen to invest outside the USA in new facilities rather than upgrade their domestic facilities. Rheem summarized by stating that the cumulative burden of environmental and efficiency regulations has been a factor in the consolidation of the domestic appliance industry. (Rheem, No. 138 at p. 3)

DOE notes that the two most significant regulatory actions affecting the furnace and boiler industries are more stringent Federal energy conservation standards for residential and commercial air conditioners, and the EPA-mandated phaseout of hydrofluorocarbon (HFC) and HCFC refrigerants. DOE is aware that manufacturers are working to redesign all of the product lines of residential air conditioners and have allocated most of their capital resources for redesigning and retooling their production lines to meet the new minimum efficiency standard and refrigerant phaseout. DOE quantified the anticipated level of investment needed to meet each of these two regulatory actions along with others facing the industry in Chapter 12 of the NOPR TSD. 71 FR 59244–29245.

In the October 2006 NOPR, DOE specifically sought comment on information that would allow it to monetize changes in warranty costs resulting from the installation of products at near-condensing levels. 71 FR 59258. GAMA stated that DOE should consider changes in warranty costs related to gas-fired boilers at 84-percent AFUE. However, GAMA also stated that it is inappropriate with respect to anti-trust considerations for manufacturers to discuss information related to monetizing changes in warranty costs. (Public Meeting Transcript, No. 107.6 at pp. 108–109)

Rheem stated that it is inappropriate to provide DOE with information that attempts to monetize the changes in warranty costs resulting from installation of products at near-condensing levels. Rheem further commented that these products should not be considered as an option due to their unacceptable safety and reliability. (Rheem, No. 101 at p. 2; Public Meeting Transcript, No. 107.6 at p. 82; Rheem, No. 138 at p. 6) Trane stated that it is inappropriate for manufacturers to discuss information related to monetizing changes in warranty costs for products at near-condensing levels.

(Public Meeting Transcript, No. 107.6 at p. 108)

In light of the comments, DOE was not able to monetize the changes in warranty costs resulting from the installation of products at near-condensing levels. However, as discussed in section VI of this preamble, safety concerns for standards at near-condensing levels were a greater factor in considering such standards, which were eventually rejected.

B. Other Issues

1. Joint Stakeholder Recommendation for Boilers

On July 14, 2006, GAMA and ACEEE, on behalf of 28 residential boiler manufacturers and four energy efficiency organizations, submitted a joint recommendation for new national standards for residential boilers that would consist of a performance requirement (minimum AFUE levels) and design requirements. Table V.1 exhibits the performance and design requirements in the joint stakeholder recommendation for boilers.

TABLE V.1.—JOINT STAKEHOLDER RECOMMENDATION FOR BOILERS PERFORMANCE AND DESIGN REQUIREMENTS

Product class				Joint stakeholder recommendation for boilers
Gas Boiler	Water Steam	82% 80		No Standing Pilot * Temperature Reset**. No Standing Pilot*.
Oil-Fired Boiler	Water Steam	84 82		Temperature Reset. None.

* The manufacturer shall not equip gas boilers with standing pilots.

** The manufacturer shall equip hot water heating boilers with automatic means for adjusting the temperature of the water supplied by the boiler such that an incremental change in inferred heat load produces a corresponding incremental change in supply water temperature. When there is no inferred heat load, such automatic means shall adjust the supply water temperature to no more than 140 deg. F. The boiler shall be operable only when the automatic means is installed. These requirements should be implemented five (5) years after publication of the Final Rule.

For gas-fired boilers, the recommendation calls for a ban on standing pilots. For gas-fired water boilers only, it suggests two design requirements: In addition to the ban on standing pilots, the recommendation also requires a “temperature reset” feature that automatically adjusts the boiler output according to the outdoor ambient air temperature. For oil-fired water boilers, the recommendation contains the design requirement for the same “temperature reset” feature.

In the October 2006 NOPR, DOE determined that the recommended standards in the joint stakeholder recommendation are beyond the scope of its statutory authority. 71 FR 59209. In comments on the October 2006 proposed rule, all of the parties to the joint recommendation urged DOE to reconsider and adopt the standards in the recommendation. (Public Meeting Transcript, No. 107.6 at p. 58; ACEEE, No. 120 at p. 4; Public Meeting Transcript, No. 107.6 at pp. 69, 142; Burnham, No. 99 at pp. 1–3; Public Meeting Transcript, No. 107.6 at p. 38; GAMA, No. 102 at p. 2; GAMA, No. 116 at p. 2; Public Meeting Transcript, No. 107.6 at p. 28; Lochinvar, No. 106 at p. 2; Public Meeting Transcript, No. 107.6 at p. 74)

Despite these comments, DOE cannot promulgate design requirements for unspecified products: The plain language of section 321(6)(B) of EPCA

limits design requirements to only those products for which design requirements are specified in the statute. (42 U.S.C. 6291(6)(b)) Furnaces are not one of those specified products. DOE legally cannot establish a design requirement for furnaces.

Congress’s establishment of a design requirement on an unspecified product, i.e., a ceiling fan, does not lift the bar on DOE placing design requirements on unspecified products as suggest by ACEEE. (ACEEE, No. 120 at p. 4) While Congress may have amended provisions of EPCA to require design requirements in conjunction with performances requirements, it did not amend section 321(6)(B) of EPCA, 42 U.S.C. 6291(6)(B), which remains applicable to furnaces and boilers.

Burnham suggested that section 325(r) of EPCA (42 U.S.C. 6295(r)) grants DOE the authority to add design requirements covered by performance standards under certain conditions. (Burnham, No. 99 at pp. 1–3) Section 325(r) states in relevant part:

Any new or amended energy conservation standard prescribed under this section * * * may include any requirement which the Secretary determines is necessary to assure that each covered product to which such standard applies meets the required level of energy efficiency * * * specified in such a standard.

(42 U.S.C. 6295(r)) Despite Burnham’s suggestion, the plain language of section

325(r) grants authority to establish requirements necessary to assure compliance with a required level of energy efficiency. It does not grant authority to establish requirements that affect the required level of energy efficiency, e.g., design requirements. Further, if the language were such that DOE could interpret the language as broadly as Burnham suggested, the distinction made in section 321(6)(A) and (B) between products for which design standards can be established and those for which such standards cannot, would be rendered meaningless.

2. Regional Standards and Waiver From Federal Preemption for States

In the October 2006 NOPR, DOE stated that the establishment of regional standards or design requirements for residential furnaces and boilers is beyond the scope of DOE’s statutory authority. 71 FR 59209; see also, 69 FR 45420, 45425 (July 29, 2004). DOE received numerous comments advocating the adoption of separate standards for northern and southern regions. (ACEEE, No. 120 at p. 3; Public Meeting Transcript, No. 107.6 at p. 59; Public Meeting Transcript, No. 107.6 at p. 54; Public Meeting Transcript, No. 107.6 at p. 68; Office of the Ohio Consumers’ Counsel (OCC), No. 125 at p. 9; National Consumer Law Center (NCLC), No. 108 at p. 2; Belmont Housing Trust, Inc., No. 127 at p. 8; City

of Boston, No. 115 at p. 1; Consumer Group, No. 121 at pp. 9–10; Northeast Division of Energy Resources (NEDER), No. 123 at p. 4; New Hampshire Office of Consumer Advocate (NHOCA), No. 134 at p. 1; State of Michigan (SOM), No. 114 at p. 1; State of New Hampshire Office of Energy and Planning, No. 139 at p. 1; NRDC, No. 131 at p. 18; Public Meeting Transcript, No. 107.6 at p. 116; NRDC, No. 132 at p. 10; Ohio Department of Development (ODD), No. 124 at p. 1; Western Electricity Coordinating Council (WECC), No. 113 at p. 1) DOE received comments that DOE incorrectly determined that it cannot implement regional standards. Conversely, DOE also received comments opposing the adoption of separate standards for northern and southern regions. (Air Conditioning Contractors of America, No. 135 at p. 1; Air-Conditioning and Refrigeration Institute (ARI), No. 133 at p. 1; National Propane Gas Association (NPGA), No. 142 at p. 3)

DOE recognizes the potential benefit that could be achieved through regional standards. As discussed in the October 2006 NOPR, DOE analyzed a regional regulatory scheme based on heating degree-days. 71 FR 59253. This scheme contemplated efficiency standards for non-weatherized gas furnaces only, depending on the region of the country.

DOE modeled the policy of regional performance standards by aggregating States into two broad geographic regions based on climate (i.e., based on heating degree-days). DOE selected the efficiency level for this scheme based on maximizing consumer NPV. Under this analysis the TSL projected to yield the maximum consumer NPV at a seven-percent discount rate for the cold-climates (i.e., $\geq 5,000$ heating degree days and $\geq 6,000$ heating degree days) was the proposed TSL 4, with the proposed TSL 2 for the warm climates. The projected results for both regions, the proposed TSL 2 (South) and the proposed TSL 4 (North), combined were estimated to yield higher energy savings than the proposed TSL 2 standard levels. The projected results for both regions combined were estimated to yield greater national NPVs (at 7% discount rate) than the proposed levels of TSL 2, applied as national standards. A more detailed discussion of this analysis is provided in the October 2006 NOPR and in the February 9, 2007 Notice of Data Availability (72 FR 6184).

However, DOE has determined that it does not have authority under EPCA to establish regional standards. The language of EPCA demonstrates that the Secretary's authority to establish and

amend standards for furnaces and boilers is limited to establishing and amending a single national standard for a particular type of furnace and boiler, as opposed to a national standard plus one or more regional standards. Section 325(a)(2) of EPCA authorizes the "Secretary to prescribe amended or new energy conservation standards for each type (or class) of covered product." (42 U.S.C. 6295(a)(2)) In defining an energy conservation standard, EPCA employs "a performance standard" or "a design requirement" in the singular. (42 U.S.C. 6291(6)) This use of the singular indicates that the Secretary generally may only set one energy conservation standard for a product.

Further, were the language of EPCA not clear as to DOE's authority for setting national standards, interpreting section 325 as generally prohibiting the establishment of regional standards is reasonable, particularly when section 325 is read in total. Consumer Groups stated that, under 1 U.S.C. section 1, the use of the singular tense includes consideration of the plural tense unless context indicates otherwise. (No. 121 at p. 10) However, the context of EPCA indicates that the reliance on the singular tense in the definition of energy conservation standard for the purpose of the Secretary establishing amended standards for furnaces and boilers is proper.

EPCA specifies that the Secretary can only set multiple standards for a product if that product has more than one major function:

The Secretary may set more than 1 energy conservation standard for products that serve more than 1 major function by setting 1 energy conservation standard for each major function.

(42 U.S.C. 6295(o)(5)). If DOE could adopt multiple performance standards or design requirements under a single conservation standard, as suggested by commenters, EPCA's limit of one conservation standard per major product function would be meaningless.

Additional commenters stated that because Congress established in certain instances multiple requirements on a single product, section 321(6) should be read more broadly to define a "conservation standard."¹⁰ However, while Congress has enacted multiple performance and design standards for covered products, the Secretary's authority to do so is limited under section 325(o)(5) as stated above.

Moreover, the Senate Report language accompanying the amendments to EPCA

under the National Appliance Energy Conservation Act (NAECA; Pub. L. 95–619) indicates that the Secretary is to set national standards. "The purpose of [NAECA] is to reduce the Nation's consumption of energy and to reduce the regulatory and economic burdens on the appliance manufacturing industry through the establishment of *national* energy conservation standards for major residential appliances." S. Rep. No. 100–6, at 2 (1987) (Emphasis added).

The two basic provisions of the NAECA amendments to EPCA concern the establishment of Federal standards and the preemption of State standards. *Id.* Although NAECA goes on to state that States have the ability to petition DOE for a waiver from the national standard, NAECA warns that achieving such a waiver is "difficult," again indicating a preference for a national standard. *Id.*

As a policy matter, national standards established under EPCA enable DOE to address the Nation's need to conserve energy while reducing the regulatory burden on manufacturers. The establishment of regional standards would be overly complicated due to the structure of DOE's enforcement authority as established in EPCA. Under EPCA, DOE's enforcement authority generally applies to products as manufactured. (42 U.S.C. 6302 and 6303) Under current authority, enforcement of Federal regional standards would be difficult given that a furnace or boiler could be manufactured for compliance in one region, yet be easily transported to a region in which it would be noncompliant. The potential interaction of various standards between regions, the subsequent potential for products to be shipped and installed in regions in which they are not compliant, and the resulting impact on energy savings would have to be considered when establishing standards. DOE recognizes the potential for regional standards to increase the net benefits of energy conservation programs under certain circumstances. However, establishing regional standards in the context of DOE's current enforcement authority would make it more difficult to achieve the goals of improved energy conservation and reduced regulatory burden.

While DOE is prohibited from promulgating regional standards under the authority in section 325 of EPCA, States can apply for waivers from Federal preemption under section 327 of EPCA. (42 U.S.C. 6297) In the October 2006 NOPR, DOE discussed the necessary conditions in order for it to grant States a waiver from Federal

¹⁰ Section 325(ff) of EPCA establishes multiple requirements for ceiling fans. (42 U.S.C. 6295(ff)).

preemption of State energy efficiency standards for appliances subject to Federal regulation, as established in 10 CFR 430.41(a)(1). 71 FR 59209.

DOE received several comments with regard to the waiver from Federal preemption discussion in the NOPR. Some commenters expressed concern that DOE was encouraging States to apply for waivers. (Public Meeting Transcript, No. 107.6 at p. 111; AGA, No. 103 at p. 5; Association of Home Appliance Manufacturers (AHAM), No. 141 at pp. 1–2; ARI, No. 133 at pp. 2–3; GAMA, No. 102 at pp. 2–3; GAMA, No. 116 at p. 2; Public Meeting Transcript, No. 107.6 at p. 30; Lennox, No. 130 at p. 3; NPGA, No. 142 at pp. 3–4; Rheem, No. 138 at p. 3; Public Meeting Transcript, No. 107.6 at p. 113; GAMA, No. 153 at p. 1) Other commenters supported DOE giving States guidance with regard to waivers from Federal preemption. (Public Meeting Transcript, No. 107.6 at p. 112; ACEEE, No. 120 at pp. 2–3; Public Meeting Transcript, No. 107.6 at p. 70; Consumer Groups, No. 121 at p. 2; Public Meeting Transcript, No. 107.6 at p. 116; NEDER, No. 123 at p. 3; NRDC, No. 131 at p. 18; NRDC and Dow Chemical, No. 132 at p. 10; New York State Energy Research and Development Authority (NYSERDA), No. 117 at p. 2; OCC, No. 125 at p. 9; SOM, No. 114 at p. 2; WECC, No. 113 at p. 2)

While the October 2006 NOPR provided a discussion of the necessary elements of a petition for waiver from Federal preemption, DOE recognizes the practical limitations of the process as well as the potential burden resulting from multiple standards. For example, DOE suggested that a State may include information regarding the efficiencies of product shipments to that State. 71 FR 59210. One commenter raised concern that such information may be considered proprietary or confidential by the manufacturers or trade organizations. (NCLC, No. 108 at p. 19) However, DOE notes that inclusion of such information was a suggestion of what a State should consider including if available, and that such information is not required for a State waiver petition.

NCLC expressed concern that petitions filed by more than one State, especially if filed by contiguous or nearby States with similar HDDs, could be deemed in per se violation of the requirement that a petition must demonstrate an “unusual and compelling State or local energy interest.” (NCLC, No. 108 at p. 19) DOE provided guidance on this matter in the denial of the California petition for waiver from Federal preemption for residential clothes washer standards. 71

FR 78157 (December 28, 2006). In that notice, DOE stated that whether a State has an “unusual and compelling State interest,” DOE will evaluate that interest in terms of national averages. 71 FR 58161.

DOE has estimated that the potential energy savings likely under a scenario in which all northern States with 5000 HDD or 6000 HDD obtained waivers at a level of 90-percent AFUE is 2 quads and 1.45 quads, respectively. While DOE does not have authority to issue regional standards, EPCA does provide an avenue for DOE to consider this savings through the waiver provision in section 327(d). As stated in the October 2006 NOPR, and as required under section 327(d), DOE would be required to evaluate the benefit of such savings from State level standards against the potential effects on manufacturers and consumer. 71 FR 59210; 42 U.S.C. 6297(d)(3) and (4).

3. Effective Date for New Standards

In the October 2006 NOPR, DOE proposed approximately an eight-year implementation period for the proposed standards; i.e., DOE proposed an effective date in 2015. 71 FR 59223. DOE noted that EPCA had directed DOE to publish a final rule to determine whether to amend standards for furnaces and boilers by January 1, 1994, and that any amendment shall apply to products manufactured on or after January 1, 2002. (42 U.S.C. 6295(f)(3)(B)) DOE applied the eight-year implementation period of the EPCA schedule to determine the effective date of the proposed standard. 71 FR 59233.

NRDC stated that the eight-year implementation period is not required by law and that the earlier central air conditioner efficiency standard rulemaking established an implementation period shorter than that provided in the statute. (NRDC, No. 131 at p. 13; Public Meeting Transcript, No. 107.6 at pp. 54, 150) ACEEE stated that large amounts of equipment already meet the proposed 2015 standards and are already available on the market. (ACEEE, No. 107 at pp. 61, 149) For furnaces, ACEEE suggested that DOE rely on a five-year implementation period associated with the second round of rulemaking for furnaces and boilers specified in section 325 of EPCA. (42 U.S.C. 6295(f)(3)(C)) With regard to boilers, ACEEE requested that DOE use the dates in the ACEEE-GAMA joint recommendation, given that manufacturers have agreed on those timeframes. (ACEEE, No. 120 at p. 9) A number of other stakeholders also stated that DOE should make the effective date earlier than 2015. (Public Meeting

Transcript, No. 107.6 at p. 69; North American Insulation Manufacturers Association, No. 136 at p. 2; NEDER, No. 123 at p. 6; NHOCA, No. 134 at p. 1; NRDC and Dow Chemical, No. 132 at p. 9; NYSERDA, No. 117 at p. 2; OCC, No. 125 at p. 9; ODD, No. 124 at p. 1; State of New Hampshire Office of Energy and Planning (OEP), No. 139 at p. 1; South Coast Air Quality Management District, No. 128 at p. 1; SOM, No. 114 at p. 2; WECC, No. 113 at p. 2; National Multi Housing Council, No. 148 at p. 2) Other stakeholders stated that DOE should maintain the effective date given in the NOPR. (Public Meeting Transcript, No. 107.6 at p. 150; GAMA, No. 116 at p. 4; GAMA, No. 153 at p. 1; Rheem, No. 156 at p. 2; Midwest Energy Efficiency Alliance, No. 150 at p. 1)

The standards adopted in today’s final rule are applicable to products manufactured on or after the date 8 years following publication of this notice of final rulemaking. DOE is maintaining an eight-year implementation period consistent with EPCA. NRDC is correct that DOE established standards with implementation periods substantially shorter than that specified in EPCA for central air conditioners. However, in that instance all of the participants in the rulemaking, including representatives of the manufacturers who would have to comply with the standards and who had expressed a view about the matter, had agreed that five years (the period provided in the statute) of lead time was not needed for central air conditioner manufacturers to come into compliance with the standards. 69 FR 50997, 50998 (Aug. 17, 2004); 67 FR 36368, 36394 (May 23, 2002). There is no similar consensus among furnace and boiler manufacturers.

In today’s final rule, DOE is providing a lead time consistent with that provided under EPCA. Today’s final rule has a compliance date that begins on the date 8 years following publication of this notice.

4. Consumer Benefits From Reduction in Natural Gas Prices Associated With a Standard of 90-Percent AFUE or Higher for Non-Weatherized Gas Furnaces

In the October 2006 NOPR, DOE stated that it believed it would be unable to consider the potential impact of energy efficiency standards on natural gas prices because DOE believed that the analytical methods necessary to estimate such an impact were not available. 71 FR 59210. DOE

acknowledged a then recent study¹¹ that considered the potential impacts of furnace and boiler standards on natural gas prices, but stated that DOE did not find that the study provided any conclusive evidence. 71 FR 59280.

NRDC and Dow Chemical challenged DOE's decision not to consider the potential impacts of reductions in natural gas use due to furnace and boiler standards with increased stringency, including the impact on natural gas prices. Commenters stated the Wisser study as well as an analysis performed by ACEEE indicate "major influences of efficiency on price." (NRDC and DOW, No. 132 at p. 4) NRDC and Dow stated that such a price impact provides a substantial economic benefit that may be estimated using EIA's NEMS model. (NRDC and Dow, No. 132 at p. 10)

In response to these comments, DOE undertook further review of the issue of the potential impact of residential furnace and boiler energy efficiency standards on natural gas prices. A review of the economic literature indicates that there is support for the idea that an impact will occur and that that impact would result in a reduction in overall natural gas prices. DOE conducted a preliminary analysis using a version of the 2007 NEMS-BT, modified to account for energy savings associated with possible standards. The preliminary analysis estimated that gas demand reductions resulting from a 90-percent-AFUE non-weatherized gas furnace standard would reduce the U.S. average wellhead natural gas price by an average of 0.7 cents per million Btu over the 2015–2030 forecast period and would reduce the average user price of gas by an average of 1.4 cents per million Btu.¹²

The projected change in the natural gas price varies among the end use sectors. DOE estimated that natural gas prices would decrease for the industrial and electric power sectors, and increase for residential consumers. The estimated average price changes amount to a decrease of 0.7 cents per million Btu for the industrial sector and of 0.6 cents per million Btu for the electric power sector, an increase of 4.2 cents per million Btu for the residential sector, and no change for the

commercial sector. The increase in the residential price occurs because the fixed charges (*e.g.*, transmission infrastructure costs) are spread over fewer million Btu of gas sales in the standards case, thus placing upward pressure on the average price per million Btu.

A projected decrease for the electric power sector would likely result in a small reduction in electricity prices across all sectors. Although the estimated reduction in average natural gas prices is small, the estimated economy-wide savings in natural gas expenditures over the 2015–2030 forecast period have an estimated net present value of \$1.7 billion at a seven-percent discount rate.¹³

In addition to conducting its own analysis using NEMS, DOE reviewed the results of: (1) Studies that used NEMS to investigate the price impact of reductions in natural gas demand, and (2) studies that used other energy-economic models to investigate the price impact of substantial change in natural gas demand. While the results vary considerably among the different studies, they generally show a price response similar to or larger than that shown by DOE's NEMS analysis.¹⁴

NRDC and Dow Chemical argued that this outcome would likely represent a net gain to society since most gas users would be better off, and producers, whose revenues and costs both would fall, would likely be no worse off. (NRDC and Dow, No. 132 at pp. 4–8). In the short run, DOE's preliminary analysis indicates that consumer savings from lower natural gas prices would be offset by declines in gas producer revenue.

In most instances, a reduction in the price of a good would not represent a net economic benefit, but rather a transfer from producers (domestic or foreign) to consumers. In other words, there is a corresponding \$1.7 billion

reduction in revenue to natural gas producers.

However, since natural gas is an exhaustible resource, price effects may be felt differently. There is a literature^{15 16} indicating that, for exhaustible resources, at least some portion of a price reduction reflects the fact that reduced demand effectively increases future supply and as such would represent a net economic or resource benefit, rather than just a transfer between parties. Although, it is uncertain as to the magnitude of price reduction that would not be a transfer benefit.

Based on the discussed analysis, DOE recognizes that there is uncertainty about the magnitude, distribution, and timing of the costs, benefits, and net benefits within the economy. DOE's preliminary analysis indicates that the prices of natural gas to residential consumers would increase slightly. If there is an increase in the prices of natural gas for residential consumers the LCCs will be affected and the LCC savings would be reduced if such price changes were incorporated in the LCC analysis. While DOE has not been able to estimate these potential effects, DOE anticipates the effect will be small since the magnitude of the residential gas price change is small (but likely to vary as the natural gas savings increases).

Similarly, DOE is uncertain of the effects of the drop in natural gas on producers and distributors of natural gas. While their revenues and costs are expected to drop, it is uncertain whether they will drop in proportion over time. The supply side will likely experience revenue loss due to both the price changes and the reduction in gas sales that they will experience.

DOE considered the potential impact on natural gas prices in the establishment of the final standards, but because of the uncertainty of these impacts, and because DOE's analysis has not been subjected to public review, this factor had little impact on DOE's conclusion. The Department did seek to provide an opportunity for public review and comment on this analysis, which if affirmed, would have merited consideration in deciding whether to finalize higher efficiency levels in this rulemaking, but because certain parties opposed DOE's ability to provide opportunity for additional comment and because the U.S. District Court ultimately denied DOE the additional

¹³ The economy-wide savings over 2015–2038 (the period used to estimate the NPV of the national consumer benefits) equals \$3.6 billion at a seven-percent discount rate.

¹⁴ The ratio of the percentage change in price to the percentage change in consumption is termed "inverse price elasticity." DOE's analysis using NEMS found an average inverse price elasticity (IPE) over the forecast period of 0.9. Analysis of the results from studies using six other models (as reported by Stanford's Energy Modeling Forum in a 2003 report "Natural Gas, Fuel Diversity and North American Energy Markets") found a wide range of inverse price elasticities for change in natural gas consumption. Four of the models show an IPE in the range of 1.1 to 2.1; two others show unusually high values of 6.3 and 7.3. DOE also reviewed studies that used the Energy and Environmental Analysis Corporation's model and found that this model results in higher inverse price elasticity (ranging from 4 to 16) than does NEMS.

¹¹ Wisser, R., M. Bolinger, M. St. Clair. Easing the Natural Gas Crisis: Reducing Natural Gas Prices through Increased Deployment of Renewable Energy and Energy Efficiency. Lawrence Berkeley National Laboratory. January 2005. (<http://eetd.lbl.gov/EA/reports/56756.pdf>).

¹² DOE only analyzed the impact of a 90-percent AFUE standard because it anticipates that impacts to natural gas prices would not result from energy savings associated with the efficiency levels considered by DOE, which are below 90-percent AFUE.

¹⁵ Fisher, A., Resource and Environmental Economics. Cambridge University Press. 1981.

¹⁶ Hotelling, H., The economics of exhaustible resources. Journal of Political Economy. Vol. 39, 137–75. 1931.

time that would be required, DOE was unable to do so.

More specifically, this rulemaking is subject to a Consent Decree filed with the U.S. District Court for the Southern District of New York, which settled the consolidated cases of *State of New York, et al. v. Bodman, and Natural Resources Defense Council, Inc., et al., v. Bodman* (No. 05-Civ.-7807 (JES) and No. 05-Civ.-7808 (JES), respectively (S.D.N.Y. consolidated December 6, 2005). Under that Consent Decree, DOE was required to publish a final rule for amended energy conservation standards for residential furnaces and boilers by September 30, 2007.

DOE had received comments on the NOPR that indicated the feasibility and desirability of addressing natural gas price impacts as a result of the standards at issue in this rulemaking. DOE wished to consider those impacts prior to promulgating a final rule, and preliminarily believed that, if confirmed, would have merited consideration in evaluating higher efficiency standards for the products covered by this rulemaking, including a 90% AFUE standard for non-weatherized gas furnaces. Therefore, in order to further address the natural gas price analysis and potentially promulgate higher efficiency standard levels, DOE moved the Court to modify the Consent Decree so that the required publication date for the final rule would be extended nine months, which would allow DOE to publish a supplemental notice of proposed rulemaking, consider the additional information, and potentially use it to form the basis for a final rule.

However, certain other parties—specifically, the Gas Appliance Manufacturers Association, the Air-Conditioning and Refrigeration Institute, the Association of Home Appliance Manufacturers objected to DOE's motion. The State of New York *et al.* and NRDC *et al.* submitted that DOE did not establish the requisite "good cause" for modifying the Consent Decree, but would be willing to stipulate to the DOE's proposed extension, provided that certain conditions are met.

On September 25, 2007, the Court granted a stay of the September 30th deadline to further consider DOE's motion, then on November 1, 2007, the Court denied the motion, thus necessitating DOE's issuance of a final rule by November 8, 2007. As part of its basis for denying the motion, the Court said that the 90-percent AFUE standard for non-weatherized gas furnaces was previously subject to public review. However, nowhere had DOE made available an analysis of the potential

impact of such a standard on natural gas prices. As indicated by GAMA, DOE must provide a rationale for the final standard level, and that generally requires that the analysis underlying DOE's determination be subject to review and comment. See, Memorandum Filed in Support of Plaintiff-Intervenors' Opposition to Motion to Modify the Consent Decree, p. 23. Because DOE was denied additional time to promulgate a final rule, DOE was unable to solicit data and comment on its natural gas price analysis, particularly with regard to the uncertainty thereof. Therefore, DOE must issue a final rule by November 8, 2007, as ordered by the Court, based on the record available to DOE at this time.

5. Efficiency Standards for Electric Furnaces

In the October 2006 NOPR, DOE did not propose energy efficiency standards for electric furnaces because DOE found that the resulting energy savings would be de minimis given the high efficiency level of such furnaces. AGA and NPGA objected to DOE's decision not to propose efficiency standards for electric furnaces, stating that these furnaces meet the statutory definition of 'furnaces' under current law. (AGA, No. 103 at p. 3; NPGA, No. 142 at p. 4) AGA disagreed with DOE's finding that energy savings would be de minimis. (AGA, No. 137 at p. 4)

DOE found that the reports of furnace manufacturers to the FTC list the efficiency of the electric furnaces at 100-percent AFUE. 16 CFR Part 305, Appendix G2. As stated in the October 2006 NOPR, DOE did not consider electric furnaces since their efficiency approaches 100-percent AFUE and improvements to them would also offer de minimis energy-savings potential. 71 FR 59214. In addition, commenters did not provide any additional data to substantiate their claims for electric furnaces. Therefore, for electric furnaces, DOE is not adopting standards in today's final rule.

6. Electricity Consumption of Furnace Fans

ACEEE, NEDER, NHOCA, NYSERDA, ODD, and OEP commented that DOE should consider standards concerning the electricity consumption of furnace fans, either in the current rulemaking or in the future. (ACEEE, No. 120 at p. 9; Public Meeting Transcript, No. 107.6 at p. 69; NEDER, No. 123 at pp. 5–6; NHOCA, No. 134 at p. 1; NYSERDA, No. 117 at p. 1; ODD, No. 124 at p. 2; OEP, No. 139 at p. 1) As stated in the October 2006 NOPR, since adding electricity consumption standards to this

rulemaking would likely cause further substantial delay in the rulemaking process, DOE accepted the recommendations from GAMA and ASAP and decided not to address furnace electricity consumption in this rulemaking. 71 FR 59209. DOE may consider furnace electricity consumption separately in a subsequent rulemaking.

7. Use of LCC Results in Selecting Standard Levels

ACEEE commented that the average LCC results reported in the October 2006 NOPR show inconsequential differences among "mainstream" efficiency options. Therefore, ACEEE stated that, given "virtually indistinguishable differences in LCC and the fact that all of these options are technically feasible," DOE should follow NAECA's dictate to select standards with the maximum savings that are technically feasible and economically justified. (ACEEE, No. 120 at p. 11) As discussed above in section III.D.1.b, the LCC is one factor DOE used in determining whether an energy conservation standard for residential furnaces and boilers is economically justified. In its consideration, DOE took into account the magnitude of differences in average LCC impacts between alternative standards, as well as the percentages of consumers predicted to experience a positive or negative LCC impact.

8. Definition of Trial Standard Levels

NRDC and Dow Chemical commented that DOE should analyze two intermediate levels between 90-percent AFUE and 96-percent AFUE (92-percent AFUE and 94-percent AFUE) for non-weatherized gas furnaces. NRDC stated that DOE has failed to determine whether these two additional levels may be economically justified. (NRDC and Dow Chemical, No. 132 at p. 8; NRDC, No. 131 at p. 10) DOE included the 92-percent AFUE for non-weatherized gas furnaces in most of the rulemaking analyses. DOE did not include this efficiency level in any TSL because it has a lower NPV (at a three-percent discount rate) than the 90-percent-AFUE furnace. DOE did not include 94-percent AFUE for non-weatherized gas furnaces in any TSL because DOE's initial evaluations indicate the costs and benefits of this efficiency level are similar to those of the 96-percent-AFUE level, which DOE has initially determined is the max-tech option.

9. Test Procedure

National Oilheat Research Alliance (NORA) encouraged DOE to more fully

integrate information about energy saving strategies into the DOE test procedure for oil-fired equipment. (Public Meeting Transcript, No. 107.6 at p. 63) While the test procedure for furnaces and boilers is not under revision at this time, DOE acknowledges the comment from NORA and will take it into consideration when DOE revises the test procedure.

10. Structural Costs Associated With Condensing Furnaces

DOE stated in the October 2006 NOPR that it recognizes that some consumers may experience additional costs that exceed those used in DOE's analysis to address necessary structural changes for installing a condensing furnace, primarily for the vent systems associated with non-weatherized gas furnaces and for mobile home gas furnaces at or above 90-percent-AFUE. 71 FR 59218. DOE noted that, for some dwellings, it may be necessary to make "structural" changes, such as the removal or penetration of an interior wall, exterior wall, or roof, to accommodate new vent systems (and combustion air intakes). While DOE did not have data to quantify the number of consumers that may be affected in this manner and the cost magnitude, it believes the possible cost impacts may be significant enough to warrant

consideration in evaluating the adoption of a standard level that would require condensing technology. Therefore, DOE invited comments on the number of consumers that may be affected by structural changes for installing a condensing furnace and the cost magnitude of any structural changes. 71 FR 59218.

DOE received two opposing comments on this issue. ACEEE commented that it does not believe there are extraordinary costs or structural changes needed for condensing furnaces that DOE did not account for in the Installation Model. (Public Meeting Transcript, No. 107.6 at p. 94) Conversely, Rheem acknowledged that there could be structural changes associated with installing a new vent system in a house, assuming it is physically feasible to do so in the existing house. (Rheem, No. 101 at p. 2; Rheem, No. 138 at p. 4) Specifically, Rheem stated that major building structural changes could be required when changing from a traditional, 80-percent-AFUE, Category I vent, which is a high-temperature and negative-pressure metal B-vent, to a 90-percent-AFUE, Category IV vent, which is a low-temperature, sealed, positive-pressure vent made with polyvinyl chloride (PVC). In many cases, Rheem pointed out that installing a new condensing

furnace in retrofit applications may be impossible, which would require the consumer to change to all-electric heating. (Rheem, No. 101 at p. 2; Rheem, No. 138 at p. 4)

DOE did not revise the Installation Model to include costs associated with the structural changes that could be required for installing a condensing furnace in retrofit applications. DOE accounted for many types of installation configurations and the costs associated with each of these in the Installation Model, which it derived with consultations and studies conducted by the Gas Research Institute. See, Appendix C of the TSD.

VI. Analytical Results and Conclusions

A. Trial Standard Levels

Table VI.1 presents the TSLs analyzed for today's final rule and the efficiency levels within each TSL for each class of product. TSL 5 is the max-tech level for each class of product. TSL levels 1, 2, 4, and 5 represent the corresponding TSL levels evaluated in the October 2006 NOPR, but with the revisions to the analysis discussed above. TSL levels A and B are comprised of standard levels presented in the NOPR, but not in the particular grouping as present in TSL A and B. TSL A and B were also evaluated using the updated analysis.

TABLE VI.1.—TRIAL STANDARD LEVELS FOR FURNACES AND BOILERS

Product classes	Trial standard levels (AFUE, %)					
	TSL 1	TSL A	TSL 2	TSL B	TSL 4	TSL 5
Non-weatherized gas furnaces	80	80	81	90	90	96
Weatherized gas furnaces	80	81	81	81	81	83
Mobile home gas furnaces	80	80	80	90	90	90
Oil-fired furnaces	80	82	82	82	84	85
Gas boilers	82	82	84	82	84	99
Oil-fired boilers	83	83	83	84	84	95

TSL 1 represents the most common product efficiencies of the current market. For example, for non-weatherized gas furnaces, TSL 1 is 80-percent AFUE, which represents the highest number of models listed in the 2005 GAMA directory.

TSL 2 is the set of efficiencies for all product classes that yields the maximum NPV as calculated in the NES analysis, assuming a seven-percent discount rate and only considering non-condensing technologies.

TSL A is comparable to TSL 2 except DOE modified the efficiency levels for non-weatherized gas furnaces and gas boilers. As discussed in section IV.A, DOE determined there are safety concerns related to potential venting

failure due to condensation for non-weatherized gas furnaces at 81-percent AFUE and for gas boilers at 84-percent AFUE. Therefore, TSL A includes efficiency levels at which DOE initially determined that there are no safety concerns for these two products (i.e., 80-percent AFUE for non-weatherized gas furnaces and 82-percent AFUE for gas boilers).

TSL 4 consists of efficiency levels that correspond to the maximum efficiency level with a positive NPV as calculated in the NES analysis, assuming a three-percent discount rate.

TSL B is comparable to TSL 4 except DOE modified the efficiency levels for oil-fired furnaces and gas boilers. As discussed in section IV.A, DOE

determined there are safety concerns related to potential venting failure due to condensation for oil furnaces at 84-percent AFUE and for gas boilers at 84-percent AFUE. Therefore, TSL B includes lower efficiency levels for these two products where there are no safety concerns (i.e., 82-percent AFUE for oil-fired furnaces and 82-percent AFUE for gas boilers). TSL B also includes the 84-percent AFUE level for oil-fired boilers as found in TSL 4, which is the same AFUE level as included in the Joint Stakeholder Recommendation for boilers discussed in section V.B.1, above.

TSL 5 is the max-tech level. It represents condensing technologies for all classes except weatherized gas-fired

furnaces. For the latter class, other technologies provide the maximum technical efficiency.

As presented in the October 2006 NOPR, the only difference between TSL 3 and 2 was the efficiency levels for non-weatherized gas furnaces and mobile home furnaces, 81-percent AFUE as compared to 80-percent AFUE, respectively. In today's notice of final rulemaking, an 81-percent AFUE for non-weatherized gas furnaces is included in TSL 2. Further, an 81-

percent AFUE for mobile home furnaces no longer yields the maximum NPV as calculated in the NES analysis, assuming a seven-percent discount rate. As such, DOE did not evaluate the proposed standard TSL 3 in this notice, as it would have been redundant for non-weatherized gas furnaces and inappropriate for mobile home furnaces.

B. Significance of Energy Savings

To estimate the energy savings through 2038 that would result from new standards, DOE compared the

energy consumption of residential furnaces and boilers under the base case (no new standards) to the energy consumption of these products under amended standards. Table VI.2 shows DOE's NES estimates for each TSL. DOE reports both undiscounted and discounted values of energy savings. Discounted energy savings represent a policy perspective wherein energy savings farther in the future are less significant than energy savings closer to the present.

TABLE VI.2.—SUMMARY OF CUMULATIVE NATIONAL ENERGY SAVINGS FOR RESIDENTIAL FURNACES AND BOILERS [Energy savings for units sold from 2015 to 2038]

Trial standard level	National energy savings (quads)		
	Not discounted	3% discounted	7% discounted
1	0.20	0.10	0.04
A	0.25	0.13	0.06
2	0.69	0.35	0.15
B	3.21	1.62	0.70
4	3.34	1.68	0.73
5	6.76	3.41	1.47

C. Economic Justification

1. Economic Impact on Consumers

a. Life-Cycle Costs and Payback Period

Consumers will be affected by the standards in that they will experience higher purchase prices and lower operating costs. Generally, these impacts are best captured by changes in LCC and by the PBP. Therefore, DOE calculated the LCC and PBP for the standard levels considered in this rulemaking. DOE's LCC and PBP analyses provided six key outputs for each TSL, which are reported in Tables VI.3 through VI.8 below. The first two outputs are the LCC and the average net life-cycle savings for a design that complies with each TSL, and the next

three outputs are the proportion of purchases where the purchase of a complying unit would create a net life-cycle cost, no impact, or net life-cycle savings for the consumer.

The final output is the average PBP for the consumer purchase of a design that complies with the TSL. The PBP is the number of years it would take for the consumer to recover, as a result of energy savings, the increased costs of higher-efficiency equipment, based on the operating cost savings from the first year of ownership. The PBP is an economic benefit-cost measure that uses benefits and costs without discounting. DOE's PBP analysis and its analysis under the rebuttable-presumption test both concern the payback period for a standard. However, DOE based the PBP

analysis for residential furnaces and boilers on energy consumption under conditions of actual use of each product by consumers, whereas, as required by EPCA, it based the rebuttable presumption test on consumption as determined under conditions prescribed by the DOE test procedure. As indicated previously, while DOE examined the rebuttable-presumption criteria, it evaluated whether the standard levels in today's notice are economically justified through a more detailed analysis of the economic impacts of increased efficiency as directed under section 325(o)(2)(B)(i) of EPCA. (42 U.S.C. 6295(o)(2)(B)(i)) Detailed information on the LCC and PBP analyses can be found in TSD Chapter 8.

TABLE VI.3.—SUMMARY OF LCC AND PAYBACK PERIOD RESULTS FOR NON-WEATHERIZED GAS FURNACES

Trial standard level	Efficiency level (AFUE) (percent)	LCC					Payback period
		LCC	LCC savings	Net cost	No impact	Net benefit	
		2006\$	2006\$	%	%	%	Years
1	78	13,016					
A	80	12,804	2	0	99	1	1.7
2	80	12,804	2	0	99	1	1.7
B	81	12,771	15	29	36	35	22
4	90	12,617	55	37	36	27	20
5	90	12,617	55	37	36	27	20
5	96	13,547	(865)	89	2	9	76

TABLE VI.4.—SUMMARY OF LCC AND PAYBACK PERIOD RESULTS FOR WEATHERIZED GAS FURNACES

Trial standard level	Efficiency level (AFUE) (percent)	LCC					Payback period
		LCC	LCC savings	Net cost	No impact	Net benefit	Years
		2006\$	2006\$	%	%	%	
1	78	10,491	.....	.....	.....	.....	.....
A	80	10,383	19	0	82	18	1.6
2	81	10,337	62	3	7	91	3.4
B	81	10,337	62	3	7	91	3.4
4	81	10,337	62	3	7	91	3.4
5	83	10,419	(20)	71	0	29	20

TABLE VI.5.—SUMMARY OF LCC AND PAYBACK PERIOD RESULTS FOR MOBILE HOME GAS FURNACES

Trial standard level	Efficiency level (AFUE) (percent)	LCC					Payback period
		LCC	LCC savings	Net cost	No impact	Net benefit	Years
		2006\$	2006\$	%	%	%	
1	75	11,271	.....	.....	.....	.....	.....
A	80	10,529	111	1	85	14	3.7
2	80	10,529	111	1	85	14	3.7
B	80	10,529	111	1	85	14	3.7
4	90	10,187	434	30	5	65	18
5	90	10,187	434	30	5	65	18

TABLE VI.6.—SUMMARY OF LCC AND PAYBACK PERIOD RESULTS FOR OIL-FIRED FURNACES

Trial standard level	Efficiency level (AFUE) (percent)	LCC					Payback period
		LCC	LCC savings	Net cost	No impact	Net benefit	Years
		2006\$	2006\$	%	%	%	
1	78	16,248	.....	.....	.....	.....	.....
A	80	15,971	10	0	96	4	0.3
2	82	15,716	177	0	30	70	0.7
B	82	15,716	177	0	30	70	0.7
4	82	15,716	177	0	30	70	0.7
5	84	15,815	96	38	15	47	14
	85	15,876	40	51	7	42	16

TABLE VI.7.—SUMMARY OF LCC AND PAYBACK PERIOD RESULTS FOR GAS BOILERS

Trial standard level	Efficiency level (AFUE) (percent)	LCC					Payback period
		LCC	LCC savings	Net cost	No impact	Net benefit	Years
		2006\$	2006\$	%	%	%	
1	80	20,472	.....	.....	.....	.....	.....
A	82	19,898	208	11	44	46	12
2	82	19,898	208	11	44	46	12
B	82	19,898	208	11	44	46	12
4	82	19,898	208	11	44	46	12
5	84	19,802	300	18	15	67	12
	99	21,042	(881)	75	3	22	35

TABLE VI.8.—SUMMARY OF LCC AND PAYBACK PERIOD RESULTS FOR OIL-FIRED BOILERS

Trial standard level	Efficiency level (AFUE) (percent)	LCC					Payback period
		LCC	LCC savings	Net cost	No impact	Net benefit	Years
		2006\$	2006\$	%	%	%	
1	80	24,594	.....	.....	.....	.....	.....
	83	23,952	69	0	84	16	0.9

TABLE VI.8.—SUMMARY OF LCC AND PAYBACK PERIOD RESULTS FOR OIL-FIRED BOILERS—Continued

Trial standard level	Efficiency level (AFUE) (percent)	LCC					Payback period
		LCC	LCC savings	Net cost	No impact	Net benefit	
		2006\$	2006\$	%	%	%	Years
A	83	23,952	69	0	84	16	0.9
2	83	23,952	69	0	84	16	0.9
B	84	23,987	56	17	61	22	19
4	84	23,987	56	17	61	22	19
5	95	24,551	(456)	72	0	28	27

b. Consumer Subgroup Analysis

DOE estimated consumer subgroup impacts by analyzing the potential effects of standards for non-weatherized gas furnaces on low-income households, households occupied only by seniors, and southern and northern households. DOE defined northern households as those in States with average HDD over

6,000, and it defined southern households as those in States with average HDD below 5,000.

DOE's analysis indicates that today's standard for non-weatherized gas furnaces would have an impact on low-income households and senior-only households that would be similar to its impact on all households.

Tables VI.9 and VI.10 show for each TSL the summary of LCC and PBP results for northern and southern households. Today's standard for non-weatherized gas furnaces (80 percent AFUE) would result in similar LCC savings in northern and southern households, with a shorter PBP for northern households.

TABLE VI.9.—SUMMARY OF LCC AND PAYBACK PERIOD RESULTS FOR NON-WEATHERIZED GAS FURNACES IN NORTHERN HOUSEHOLDS [>6000 HDD]

Trial standard level	Efficiency level (AFUE) (percent)	LCC					Payback period
		LCC	LCC savings	Net cost	No impact	Net benefit	
		2006\$	2006\$	%	%	%	years
1	78	15,492	.....	.....	.....	.....	.....
A	80	15,222	3	0	98	2	0.7
2	80	15,222	3	0	98	2	0.7
B	81	15,161	32	47	47	34	14
4	90	14,779	212	22	47	31	13
5	90	14,779	212	22	47	31	13
5	96	15,582	(598)	84	2.4	13	61

TABLE VI.10.—SUMMARY OF LCC AND PAYBACK PERIOD RESULTS FOR NON-WEATHERIZED GAS FURNACES IN SOUTHERN HOUSEHOLDS [<5000 HDD]

Trial standard level	Efficiency level (AFUE) (percent)	LCC					Payback period
		LCC	LCC savings	Net cost	No impact	Net benefit	
		2006\$	2006\$	%	%	%	years
1	78	10,439	.....	.....	.....	.....	.....
A	80	10,285	2	0	98	2	2.2
2	80	10,285	2	0	98	2	2.2
B	81	10,280	1	40	23	37	29
4	90	10,345	(82)	55	21	23	26
5	90	10,345	(82)	55	21	23	26
5	96	11,389	(1,108)	92	1.4	7	101

Chapter 11 of the TSD explains DOE's method for conducting the consumer subgroup analysis and presents the detailed results of that analysis.

2. Economic Impact on Manufacturers

DOE determined the economic impacts on manufacturers of more stringent standards for residential

furnaces and boilers, as described in the October 2006 NOPR. 71 FR 59212, 59228–59232, 59240–59245. The only modifications DOE made to the MIA for this final rule were the inclusion of the revised manufacturing costs from the engineering analysis, the conversion of the capital and product conversion cost to 2006\$, and the revised shipments

from the NES analysis. DOE fully describes this analysis in Chapter 12 of the final rule TSD.

a. Industry Cash-Flow Analysis Results

Using four different markup scenarios and two shipments forecasts, 71 FR 59230–59232, 59240, DOE estimated the impact of amended standards for

residential furnaces and boilers on the INPV of the furnace and boiler industry. The impact of new standards on INPV consists of the difference between the INPV in the base case (no new standards) and the INPV in the standards case (with amended standards). INPV is the primary metric used in the MIA, and provides one measure of the fair value of the industry

in today's dollars. DOE calculated the INPV by summing all of the net cash flows, discounted at the industry's cost of capital, or discount rate.

Tables VI.11 through VI.16 show the estimated changes in INPV that would result from the TSLs DOE considered in this rulemaking, using both the shipments estimates calculated in the NES analysis, and the shipments data

that manufacturers provided. Each table shows the changes attributable to one of the product classes DOE evaluated. The figures in these tables reflect and are affected by the product conversion expenses and capital investments that the industry would incur at each TSL, but the tables do not display these expenses and investments.

TABLE VI.11.—CHANGES IN INDUSTRY NET PRESENT VALUE FOR NON-WEATHERIZED GAS FURNACES [2006\$]

TSL	NES shipments					
	Flat markup			Two-tier markup		
	INPV \$MM	Change in INPV from base		INPV \$MM	Change in INPV from base	
		\$MM	% change		\$MM	% change
Base case	1,197			1,161		
1	1,197	0	0	1,162	1	0
A	1,197	0	0	1,162	1	0
2	1,125	(72)	-6	1,084	(78)	-7
B	1,217	20	2	881	(280)	-24
4	1,217	20	2	881	(280)	-24
5	1,505	307	26	937	(224)	-19
Manufacturers' shipments						
Base case	1,227			1,235		
1	1,227	0	0	1,235	0	0
A	1,227	0	0	1,235	0	0
2	1,152	(74)	-6	1,155	(79)	-6
B	1,110	(117)	-10	839	(396)	-32
4	1,110	(117)	-10	839	(396)	-32
5	902	(324)	-26	595	(640)	-52

TABLE VI.12.—CHANGES IN INDUSTRY NET PRESENT VALUE FOR WEATHERIZED GAS FURNACES [2006\$]

TSL	NES shipments					
	Flat markup			Constant price markup		
	INPV \$MM	Change in INPV from base		INPV \$MM	Change in INPV from base	
		\$MM	% change		\$MM	% change
Base case	272			272		
1	239	(32)	-12	235	(37)	-14
A	232	(40)	-15	218	(54)	-20
2	232	(40)	-15	218	(54)	-20
B	232	(40)	-15	218	(54)	-20
4	232	(40)	-15	218	(54)	-20
5	223	(48)	-18	181	(91)	-33

TABLE VI.13.—CHANGES IN INDUSTRY NET PRESENT VALUE FOR MOBILE HOME GAS FURNACES [2006\$]

TSL	Flat markup					
	NES shipments			Manufacturers' shipments		
	INPV \$MM	Change in INPV from base		INPV \$MM	Change in INPV from base	
		\$MM	% change		\$MM	% change
Base case	23			23		
1	23	0	0	23	0	0
A	23	0	0	23	0	0
2	23	0	0	23	0	0

TABLE VI.13.—CHANGES IN INDUSTRY NET PRESENT VALUE FOR MOBILE HOME GAS FURNACES—Continued
[2006\$]

TSL	Flat markup					
	NES shipments			Manufacturers' shipments		
	INPV \$MM	Change in INPV from base		INPV \$MM	Change in INPV from base	
		\$MM	% change		\$MM	% change
B	11	(11)	-50	11	(13)	-56
4	11	(11)	-50	11	(13)	-56
5	11	(11)	-50	11	(13)	-56

TABLE VI.14.—CHANGES IN INDUSTRY NET PRESENT VALUE FOR OIL-FIRED FURNACES
[2006\$]

TSL	NES Shipments					
	Flat markup			Constant price markup		
	INPV \$MM	Change in INPV from base		INPV \$MM	Change in INPV from base	
		\$MM	% change		\$MM	% change
Base case	36			36		
1	35	(2)	-5	35	(2)	-5
A	33	(4)	-10	31	(5)	-14
2	33	(4)	-10	31	(5)	-14
B	33	(4)	-10	31	(5)	-14
4	29	(8)	-21	25	(12)	-32
5	28	(8)	-23	22	(15)	-40

TABLE VI.15.—CHANGES IN INDUSTRY NET PRESENT VALUE FOR GAS BOILERS
[2006\$]

TSL	Manufacturers' Shipments					
	Flat markup			Three-tier markup		
	INPV \$MM	Change in INPV from base		INPV \$MM	Change in INPV from base	
		\$MM	% change		\$MM	% change
Base case	201			201		
1	200	(1)	-1	196	(5)	-3
A	200	(1)	-1	196	(5)	-3
2	184	(17)	-8	174	(27)	-13
B	200	(1)	-1	196	(5)	-3
4	184	(17)	-8	174	(27)	-13
5	171	(30)	-15	100	(101)	-50

TABLE VI.16.—CHANGES IN INDUSTRY NET PRESENT VALUE FOR OIL-FIRED BOILERS
[2006\$]

TSL	Manufacturers' Shipments					
	Flat markup			Three-tier markup		
	INPV \$MM	Change in INPV from base		INPV \$MM	Change in INPV from base	
		\$MM	% change		\$MM	% change
Base case	78			78		
1	74	(4)	-5	63	(14)	-18
A	74	(4)	-5	63	(14)	-18
2	74	(4)	-5	63	(14)	-18
B	74	(4)	-5	62	(15)	-20
4	74	(4)	-5	62	(15)	-20

TABLE VI.16.—CHANGES IN INDUSTRY NET PRESENT VALUE FOR OIL-FIRED BOILERS—Continued
[2006\$]

TSL	Manufacturers' Shipments					
	Flat markup			Three-tier markup		
	INPV \$MM	Change in INPV from base		INPV \$MM	Change in INPV from base	
		\$MM	% change		\$MM	% change
5	59	(18)	-23	32	(45)	-58

The October 2006 NOPR provides a detailed discussion of the estimated impact of amended furnace and boiler standards on INPV for each product class. 71 FR 59240–59244.

b. Impacts on Manufacturing Capacity and Subgroups of Manufacturers

As discussed in the October 2006 NOPR, to the extent that more stringent energy conservation standards increase the size of the heat exchanger, they could reduce plant throughput, particularly for those plants that are limited in available space used for fabricating heat exchangers. The standards, thus, could necessitate that manufacturers add floor space to their existing plants and warehouses. In addition, assembly and fabrication times could increase for the larger equipment. In an attempt to recoup capacity, manufacturers might need to invest in productivity, or equipment, or consider outsourcing some heat exchanger production. 71 FR 59244.

It is not clear that all new capacity would be added in the United States. During the MIA interviews, several manufacturers stated that there has been a trend in the industry to move production facilities to overseas locations where labor markets offer cost savings. Some of these companies commented that new standards could speed up this trend. However, DOE does not expect the standards being adopted in today's final rule to significantly reduce plant throughput.

As discussed in the October 2006 NOPR, using average cost assumptions to develop an industry-cash-flow estimate is not adequate for assessing differential impacts among subgroups of manufacturers. 71 FR 59244. Small manufacturers, niche players, or manufacturers exhibiting a cost structure that differs largely from the industry average could be affected differently. DOE used the results of the industry characterization to group manufacturers exhibiting similar characteristics. As discussed in the October 2006 NOPR, DOE expects the standard levels being adopted in today's

final rule to have a relatively minor differential impact on small manufacturers of residential furnaces and boilers. 71 FR 59244.

c. Cumulative Regulatory Burden

As discussed in the October 2006 NOPR, one aspect of the assessment of manufacturer burden is the cumulative impact of multiple DOE standards and other regulatory actions that affect the manufacture of the same covered products. 71 FR 59244–59245. Manufacturers of residential furnaces and boilers also manufacture approximately 82 percent of the residential central air conditioners and heat pumps. New, higher Federal efficiency standards became applicable to residential central air conditioners manufactured after January 23, 2006, and new, higher Federal standards will apply to commercial air conditioning equipment manufactured after January 1, 2010. In addition, the EPA has mandated the phaseout, by January 1, 2010, of certain refrigerants used in these products. The furnace and boiler manufacturers who also produce residential and commercial air conditioning products have been and will be devoting substantial resources to complying with these requirements. Manufacturers have been working to redesign all of the product lines and have allocated most of their capital resources for redesigning and retooling their production lines to meet the new minimum efficiency standards. Manufacturers are also now re-designing their product offerings and will need to retool to meet the EPA standards. Chapter 12 of the final rule TSD addresses in greater detail the issue of cumulative regulatory burden.

3. National Net Present Value and Net National Employment

The NPV analysis estimates the cumulative benefits or costs to the Nation that would result from particular standard levels. While the NES analysis estimates the energy savings from a proposed energy efficiency standard, the NPV analysis provides estimates of the

national economic impacts of a proposed standard relative to a base case of no new standard. Table VI.17 provides an overview of the NPV results, using both a seven-percent and a three-percent real discount rate. See TSD Chapter 10 for more detailed NPV results.

TABLE VI.17.—SUMMARY OF CUMULATIVE NET PRESENT VALUE FOR RESIDENTIAL FURNACES AND BOILERS

[Impacts for units sold from 2015 to 2038]

Trial standard level	NPV (billion 2006\$)	
	7% discount rate	3% discount rate
1	0.51	1.69
A	0.69	2.18
2	0.89	4.02
B	0.98	11.07
4	0.98	11.53
5	-21.38	-26.03

DOE also estimated the national employment impacts due to each of the TSLs. As discussed in the October 2006 NOPR, 71 FR 59232–59233, 59247, DOE expects the net monetary savings from standards to be redirected to other forms of economic activity. As shown in Table VI.18, DOE estimates net indirect employment impacts—changes in employment in the larger economy (other than in the manufacturing sector being regulated)—from furnace and boiler energy efficiency standards to be positive but relatively small. Although DOE's analysis suggests that today's furnace and boiler standards would result in a very small increase in the net demand for labor in the economy, relative to total national employment, this increase would be sufficient to offset fully any adverse impacts on employment that might occur in the furnace and boiler industry. For details on the employment impact analysis methods and results, see TSD Chapter 14.

TABLE VI.18.—NET NATIONAL CHANGE IN INDIRECT EMPLOYMENT
[Thousands of jobs in 2038]

Trial Standard Level (Thousands of Jobs)					
TSL1	TSLA	TSL2	TSLB	TSL4	TSL5
0.74	0.94	2.55	11.71	12.96	26.07

4. Impact on Utility or Performance of Equipment

As indicated in section V.B.4 of the October 2006 NOPR, DOE believes that the new standards it is adopting today will not lessen the utility or performance of any residential furnaces and boilers. 71 FR 59247.

5. Impact of Any Lessening of Competition

As previously discussed in the October 2006 NOPR, 71 FR 59213, 59247, and in section II.F.1.e of this preamble, DOE considers any lessening of competition that is likely to result from standards and the Attorney General determines the impact, if any, of any such lessening of competition. To assist the Attorney General in making such a determination, DOE provided DOJ with copies of the October 2006 proposed rule and the NOPR TSD for review.

In comment on the October 2006 proposed rule, DOJ expressed concern that the proposed standards for weatherized gas furnaces at 83 percent AFUE and gas boilers at 84 percent AFUE could adversely affect competition, and that manufacturers

would have difficulty designing products that safely meet the proposed standards. (DOJ at No. 144, p. 2) DOJ noted that, for weatherized gas furnaces, meeting the standard would likely result in increased condensation, potentially resulting in significant deterioration that would jeopardize the safety of the product, and, for gas-fired water boilers, meeting the standard would make effective CO₂ venting more difficult. DOJ further noted that any resulting costs incurred to solve these issues could adversely affect the competitiveness of these products in relation to electric heat pumps and water heaters. DOJ urged DOE to carefully consider its proposed standards in light of these concerns.

As described in section V.D of this preamble, DOE is adopting lower efficiency levels for the standards for weatherized gas furnaces and gas boilers than the levels proposed in the October 2006 proposed rule. DOE expects that the lower efficiency levels avoid the problems that DOJ mentioned for weatherized gas furnaces and gas boilers. Manufacturers would not incur costs to solve these issues and, therefore, the standards established in

today's rule would not adversely affect the competitiveness of these products in relation to electric heat pumps and water heaters.

6. Need of the Nation To Conserve Energy

The Secretary recognizes the need of the Nation to save energy. Enhanced energy efficiency, where economically justified, improves the Nation's energy security, strengthens the economy, and reduces the environmental impacts or costs of energy production. The energy savings from residential furnace and boiler standards is projected to result in (1) reduced power sector emissions of CO₂, (2) either reduced power sector emissions of NO_x or an economic benefit in the form of emission allowance credits for this pollutant, and (3) reduced household emissions (i.e., emissions at the sites where appliances are used) of CO₂, NO_x, and SO₂. DOE expects the standards to have negligible impact on electricity generating capacity.

Table VI.19 provides DOE's estimate of the emissions reductions projected to result from adoption of the TSLs considered in this rulemaking.

TABLE VI.19.—SUMMARY OF EMISSIONS REDUCTIONS FOR RESIDENTIAL FURNACES AND BOILERS
[Cumulative reductions for units sold from 2015 to 2038]

Emission	TSL 1	TSL A	TSL 2	TSL B	TSL 4	TSL 5
CO ₂ (Mt)	-6.1	-7.8	-20.0	-137.1	-141.3	-322.0
NO _x (kt)	-7.3	-9.2	-23.9	-164.6	-169.2	-373.1
SO ₂ (kt)	0.0	-1.8	-2.0	-6.2	-10.5	-63.9

DOE also calculated discounted values for future emissions, using the same seven-percent and three-percent

real discount rates that it used in calculating the NPV. Table VI.20 shows the discounted cumulative emissions

impacts for residential furnaces and boilers.

TABLE VI.20.—SUMMARY OF DISCOUNTED EMISSIONS REDUCTIONS FOR RESIDENTIAL FURNACES AND BOILERS
[Cumulative reductions for units sold from 2015 to 2038]

Emission	TSL 1	TSL A	TSL 2	TSL B	TSL 4	TSL 5
7% Discount Rate						
CO ₂ (Mt)	-1.6	-2.1	-5.3	-36.2	-37.3	-83.9
NO _x (kt)	-1.7	-2.1	-5.4	-37.3	-38.3	-84.4
SO ₂ (kt)	0.0	-0.4	-0.5	-1.4	-2.4	-14.7

TABLE VI.20.—SUMMARY OF DISCOUNTED EMISSIONS REDUCTIONS FOR RESIDENTIAL FURNACES AND BOILERS—
Continued

[Cumulative reductions for units sold from 2015 to 2038]

Emission	TSL 1	TSL A	TSL 2	TSL B	TSL 4	TSL 5
3% Discount Rate						
CO ₂ (Mt)	-3.4	-4.3	-10.9	-74.8	-77.1	-174.9
NO _x (kt)	-3.8	-4.7	-12.3	-84.5	-86.9	-191.5
SO ₂ (kt)	0.0	-0.9	-1.0	-3.2	-5.4	-33.0

For further details on the environmental impacts of today's standards, see the "Environmental Assessment for Proposed Energy Conservation Standards for Residential Furnaces and Boilers," a separate report in the TSD for today's rule.

7. Other Factors

EPCA provides that, in deciding whether a standard is economically justified, DOE must, after receiving comments on the proposed standard, determine whether the benefits of the standard exceed its burdens by considering, to the greatest extent practicable, other factors the Secretary considers relevant. (42 U.S.C. 6295(o)(2)(B)(i)) In developing today's standard, the Secretary took into consideration safety concerns related to carbon monoxide exposure resulting from potential failures of venting systems (and heat exchangers), stemming from extraneous condensate production in furnaces and boilers.

D. Conclusion

EPCA contains criteria for DOE to consider in prescribing new or amended energy conservation standards. It states that any such standard for any type (or class) of covered product must be designed to achieve the maximum improvement in energy efficiency that the Secretary determines is technologically feasible and economically justified. (42 U.S.C.

6295(o)(2)(A)) As stated above, in determining whether a standard is economically justified, the Secretary must determine whether the benefits of the standards exceed its burdens considering:

(1) The economic impact of the standard on the manufacturers and on the consumers of the products subject to such standard;

(2) The savings in operating costs throughout the estimated average life of the covered product in the type (or class) compared to any increase in the price of, or in the initial charges for, or maintenance expenses of, the covered products which are likely to result from the imposition of the standard;

(3) The total projected amount of energy, or as applicable, water, savings likely to result directly from the imposition of the standard;

(4) Any lessening of the utility or the performance of the covered products likely to result from the imposition of the standard;

(5) The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the imposition of the standard;

(6) The need for national energy and water conservation; and

(7) Other factors the Secretary considers relevant.

(42 U.S.C. 6295(o)(2)(B)(i)) A determination of whether a standard level is economically justified is not

made based on any one of these factors in isolation. The Secretary must weigh each of these seven factors in total in determining whether a standard is economically justified. Further, the Secretary may not establish an amended standard if such standard would not result in "significant conservation of energy," or "is not technologically feasible or economically justified." (42 U.S.C. 6295(o)(3)(B))

In selecting energy conservation standards for residential furnaces and boilers for consideration in the October 2006 proposed rule as well as this final rule, DOE started by examining the maximum technologically feasible levels, and determined whether those levels were economically justified. Upon finding the maximum technologically feasible levels not to be justified, DOE analyzed the next lower TSL to determine whether that level was economically justified. DOE repeated this procedure until it identified a TSL that was economically justified.

Table VI.21 summarizes DOE's quantitative analysis results for all of the TSLs it considered. This table presents the results or, in some cases, a range of results, for each TSL, and will aid the reader in the discussion of costs and benefits of each TSL. The range of values reported in this table for industry impacts represents the results for the different markup scenarios and shipments forecasts that DOE used to estimate manufacturer impacts.

TABLE VI.21.—SUMMARY OF RESULTS

	TSL 1	TSL A	TSL 2	TSL B	TSL 4	TSL 5
Primary energy saved (quads)	0.20	0.25	0.69	3.21	3.34	6.76
7% Discount rate	0.04	0.06	0.15	0.70	0.73	1.47
3% Discount rate	0.10	0.13	0.35	1.62	1.68	3.41
Generation capacity change (GW) **	0.4	0.5	1.2	8.2	8.4	17.8
NPV (2006\$billion):						
7% Discount rate	0.51	0.69	0.89	0.98	0.98	-21.38
3% Discount rate	1.69	2.18	4.02	11.07	11.53	-26.03
Industry impacts:						
Industry NPV (2006\$million)	-38 to -58	-48 to -74	-136 to -179	-39 to -483	-59 to -519	192 to -904
Industry NPV (% Change)	-2 to -3	-3 to -4	-8 to -10	-2 to -26	-3 to -28	11 to -49
Cumulative emissions impacts:***						
CO ₂ (Mt)	-6.1	-7.8	-20.0	-137.1	-141.3	-322.0
NO _x (kt)	-7.3	-9.2	-23.9	-164.6	-169.2	-373.1

TABLE VI.21.—SUMMARY OF RESULTS—Continued

	TSL 1	TSL A	TSL 2	TSL B	TSL 4	TSL 5
SO ₂ (kt)	0.0	-1.8	-2.0	-6.2	-10.5	-63.9
Mean life-cycle cost savings (2006\$):						
Non-Weatherized Gas Furnaces	\$2	\$2	\$15	\$55	\$55	(\$865)
Weatherized Gas Furnaces	\$19	\$62	\$62	\$62	\$62	(\$20)
Oil-Fired Furnaces	\$10	\$177	\$177	\$177	\$96	\$40
Gas Boilers	\$208	\$208	\$208	\$208	\$300	(\$881)
Oil-Fired Boilers	\$69	\$69	\$69	\$56	\$56	(\$456)
Mobile Home Gas Furnaces	\$111	\$111	\$111	\$434	\$434	\$434
Mean Payback Period (years):						
Non-Weatherized Gas Furnaces	1.7	1.7	22	20	20	76
Weatherized Gas Furnaces	1.6	3.4	3.4	3.4	3.4	20
Oil-Fired Furnaces	0.3	0.7	0.7	0.7	14	16
Gas Boilers	12	12	12	12	12	35
Oil-Fired Boilers	0.9	0.9	0.9	19	19	27
Mobile Home Gas Furnaces	3.7	3.7	3.7	18	18	18

* Parentheses indicate negative (-) values.

** Change in installed generation capacity by the year 2038 based on AEO2007 Reference Case.

*** CO₂ emissions impacts include physical reductions at power plants and households. NO_x emissions impacts include physical reductions at power plants and households as well as production of emissions allowance credits where NO_x emissions are subject to emissions caps. SO₂ emissions impacts include physical reductions at households only.

In addition to the quantitative results, DOE also considered other burdens and benefits that affect economic justification. DOE took into consideration safety concerns arising from the potential failure of venting systems or heat exchangers used for residential furnaces and boilers. These concerns affect non-weatherized gas furnaces at 81 percent, weatherized gas furnaces at 83 percent and 82 percent, oil furnaces at 84 percent, and gas boilers at 84 percent AFUE. See section IV.A of this preamble and final rule TSD Chapter 6 for further discussion.

First, DOE considered TSL 5, the maximum technologically feasible level, for each product class. TSL 5 would likely save 6.76 quads of energy through 2038, an amount DOE considers significant. Discounted at seven percent, the energy savings through 2038 would be 1.47 quads. For the Nation as a whole, TSL 5 would result in a net cost of \$21.4 billion in NPV, discounted at seven percent. Although DOE did not quantify the potential benefits from reductions in natural gas prices as a result of TSL 5, DOE has determined that the overall impact on the economy would still be overwhelmingly negative because the decline in NPV at TSL 5 is very large. The emissions reductions are projected at 322 Mt of CO₂,¹⁷ 373 kt of NO_x, and 64 kt of SO₂. Total generating capacity in 2030 is estimated to increase 17.8 gigawatts (GW) under TSL 5, due

to projected switching from gas furnaces to electric heating equipment.

At TSL 5, the average consumer is projected to experience a significant increase in LCC for most product classes. Purchasers of non-weatherized gas furnaces are projected to lose on average \$865 over the life of the product in present value terms and purchasers of gas-fired boilers would lose on average \$881 in present value terms.¹⁸ The LCC savings are estimated to be negative for 89 percent of households in the Nation that purchase non-weatherized gas furnaces, and for 92 percent of all non-weatherized gas furnace consumers in the southern region. The mean payback period of all product classes, except for oil-fired gas furnaces, is estimated to be substantially longer than the mean lifetime.

The projected change in industry value (INPV) ranges from an increase of \$192 million to a decrease of \$904 million. The magnitude of the impacts is largely determined by the cashflow results for non-weatherized gas furnaces. For this product class, the impacts are driven primarily by the assumptions regarding future product shipments and the ability of manufacturers to offer differentiated products that command a premium markup. DOE recognizes the significant difference between the shipments forecasted by the NES analysis and those anticipated by manufacturers.

DOE is concerned about the projected increase in total installed cost of \$1,859, or 82 percent, for non-weatherized gas furnaces. With an increase of this size, there is a significant risk of consumers switching to other heating systems, including heat pumps and electric resistance heating. DOE also recognizes that maintaining a full product line is more difficult for manufacturers at higher standard levels. Therefore, DOE places more weight on the two-tiered markup scenario for non-weatherized gas furnaces at TSL 5. In particular, if the high range of impacts is reached as DOE expects, TSL 5 could result in a net loss of \$640 million to the non-weatherized gas furnace industry.

After carefully considering the analysis, comments on the proposed rule, and weighing the benefits and burdens, the Secretary reached a similar conclusion as set forth in the NOPR: At TSL 5 the benefits of energy savings and emissions reduction are expected to be outweighed by the potential multi-billion dollar negative net economic cost to the Nation, the economic burden on consumers, and the large capital-conversion costs that could result in a reduction in INPV for manufacturers. Consequently, the Secretary has concluded that TSL 5, the maximum technologically feasible level, is not economically justified.

Next, DOE considered TSL 4. Primary energy savings is estimated at 3.34 quads of energy through 2038, which DOE considers significant. Discounted at seven percent, the energy savings through 2038 would be 0.73 quads. For the Nation as a whole, TSL 4 is projected to result in net savings of \$0.98 billion in NPV, discounted at seven percent. The emissions reductions

¹⁷ For all of the TSLs, CO₂ emissions impacts include physical reductions at power plants and households. NO_x emissions impacts include physical reductions at power plants and households as well as production of emissions allowance credits where NO_x emissions are subject to emissions caps. SO₂ emissions impacts include physical reductions at households only.

¹⁸ Non-weatherized gas furnaces are the most prominent class of residential furnaces and boilers, accounting for approximately 72 percent of the total industry sales and approximately 81 percent of residential furnace sales. Gas-fired boilers are the most prominent class of residential boilers, accounting for 6 percent of the total industry sales and 61 percent of residential boiler sales.

are projected to be 141 Mt of CO₂, 169 kt of NO_x, and 10.5 kt of SO₂. Total generating capacity in 2030 under TSL 4 is estimated to increase by 8.4 GW due to the projected switching from gas furnaces to electric heating equipment.

At TSL 4, consumers are projected to experience a decrease in LCC for all of the product classes. Purchasers of non-weatherized gas furnaces are projected to save, on average, \$55 over the life of the product in present value terms, and purchasers of gas-fired boilers are projected to save, on average, \$300 over the life of the boiler in present value terms. DOE found that 37 percent of households with non-weatherized gas furnaces would be expected to experience a net cost, and 27 percent of households with non-weatherized gas furnaces would be expected to experience a net gain.

TSL 4 requires the use of condensing technology for non-weatherized gas furnaces. A majority of the affected consumers in the south would be expected to experience a significant increase in total installed cost. Since the operating cost savings of condensing technology are less of a factor in warmer climates, the substantial increase in total installed cost leads to increased life-cycle costs. DOE found that 55 percent of households in the south purchasing a non-weatherized gas furnace would experience a life-cycle net cost. The average LCC increase to the southern consumer purchasing a non-weatherized gas furnace is \$82. The mean payback period of non-weatherized gas furnaces in the south would be substantially longer than the mean lifetime of these furnaces.

At TSL 4, the projected change in INPV ranges from a loss of \$59 million to a loss of \$519 million, which could potentially cause up to a 42 percent drop in total industry value. The magnitude of projected impacts is still largely determined by the cashflow results for the non-weatherized gas furnaces. For this product class, the projected impacts continue to be driven primarily by the assumptions regarding future product shipments and the ability to offer differentiated products. Although the projected impacts will not be as severe as expected for TSL 5 for the non-weatherized gas furnace industry, the magnitude of the projected impacts would still be determined primarily by the assumptions regarding future product shipments and the ability to offer differentiated products that command a premium markup. Although the range of possible impacts is not as large as for TSL 5, DOE still recognizes the significant differences between the shipments forecast by the NES analysis

and those anticipated by manufacturers. DOE believes that with an increase in total installed cost of \$701 for non-weatherized gas furnaces, or 31 percent, some consumers are likely to switch to other heating systems, including heat pumps and electric resistance heating. The low-end estimate of losses in INPV is based on DOE's estimate of the fuel switching that is most likely to occur, while the high end estimate of losses is based largely on manufacturer estimates of fuel switching. Additionally, some product classes would likely require large product-conversion costs because the products would require new heat-exchanger designs to meet the efficiency requirements prescribed in TSL 4. Even though the ability of manufacturers to differentiate products is greater at TSL 4 than at TSL 5, it will still be harder for manufacturers to differentiate products because all of the products offered in TSL 4 for non-weatherized gas furnaces use condensing technology. In particular, if the high range of impacts is reached, TSL 4 could result in a net loss of \$396 million to the non-weatherized gas furnace industry.

After carefully considering the results of the analysis, comments on the proposed rule, and the benefits versus burdens, the Secretary reached a similar conclusion as set forth in the NOPR: At TSL 4, the benefits of energy and cost savings and emissions impacts would be outweighed by the economic burden on southern households and the capital conversion costs that are likely to result in a significant reduction in INPV for manufacturers. In addition, DOE determined that there are safety concerns related to potential venting failure due to condensation with oil-fired furnaces at 84 percent AFUE and with gas boilers at 84 percent AFUE. DOE received numerous comments reaffirming these safety concerns, and the Secretary has concluded upon consideration of the factors to determine whether a standard is economically justified that TSL 4 is not economically justified and contains two efficiency levels that could pose a safety or health risk to consumers.

Next, DOE considered TSL B. TSL B is the same as TSL 4 except for oil-fired furnaces and gas boilers, for which there are safety concerns as described above. Therefore, for these two products TSL B includes lower efficiency levels at which these safety concerns are not present (i.e., 82 percent AFUE for oil furnaces and 82 percent for gas boilers).

TSL B is projected to save 3.21 quads of energy through 2038, an amount DOE considers significant. Discounted at seven percent, the projected energy savings through 2038 would be 0.70

quads. For the Nation as a whole, TSL B would result in net savings in NPV of \$0.98 billion, discounted at seven percent. The emissions reductions are projected at 137 Mt of CO₂, 165 kt of NO_x, and 6.2 kt of SO₂. Total generating capacity in 2030 under TSL B is projected to increase by 8.2 GW due to the projected switching from gas furnaces to electric heating equipment.

At TSL B, DOE estimates that purchasers of non-weatherized gas furnaces would save, on average, \$55 over the life of the product and purchasers of gas-fired boilers would save, on average, \$208. As with TSL 4, DOE estimates that 37 percent of households with non-weatherized gas furnaces would experience a net cost, and 27 percent of households with non-weatherized gas furnaces would experience a net gain, with the remaining 36 percent being unaffected. DOE estimated that 55 percent of households in the south with a non-weatherized gas furnace would experience a net life-cycle cost. The estimated average LCC increase to the southern consumer purchasing a non-weatherized gas furnace is \$82. The mean payback period of non-weatherized gas furnaces in the south is projected to be substantially longer than the mean lifetime of these furnaces.

The projected change in INPV ranges between a loss of \$39 million and a loss of \$483 million. Just as with TSL 4, the projected impacts continue to be driven primarily by the assumptions regarding future product shipments and the ability to offer differentiated products. More specifically, most of these differences are attributable to the significant differences between the shipments forecast by the NES analysis and those anticipated by manufacturers. Furthermore, some manufacturers stated they would likely use a de-rating strategy to reduce the increased capital costs associated with TSL B. If manufacturers use such a strategy, it is anticipated that the variety of products offered by the manufacturers would be reduced by eliminating some of the higher-capacity models to reduce the negative impacts. At TSL B, consumers would experience an average increase in total installed cost of \$700 for non-weatherized gas furnaces (compared to an 80-percent AFUE furnace). There is a potential risk at this level of consumers switching to electric heating systems, as further detailed in the shipments forecast discussion in Chapter 12 of the TSD. For the furnace industry alone, the industry value would decrease from 2.1 percent to 26.2 percent.

After carefully considering the analysis, comments on the October 2006 proposed rule, and the benefits versus burdens, the Secretary concludes after weighing the statutory criteria in total that TSL B would not be economically justifiable. In particular, the benefits of energy and cost savings and emissions impacts are likely to be outweighed by the economic burden on southern households and the capital conversion costs that are likely to result in a significant reduction in INPV for manufacturers.

Next, DOE considered TSL 2. Primary energy savings at this level would likely be 0.69 quad of energy through 2038, which DOE considers significant. Discounted at seven percent, the energy savings through 2038 is projected to be 0.15 quads. For the Nation as a whole, TSL 2 is projected to result in a net savings of \$0.89 billion in NPV, discounted at seven percent. The emissions reductions are projected at 20 Mt of CO₂, 24 kt of NO_x, and 2 kt of SO₂. Total generating capacity in 2030 under TSL 2 would likely increase by 1.2 GW due to the projected switching from gas furnaces to electric heating equipment.

At TSL 2, purchasers of non-weatherized gas furnaces would save, on average, an estimated \$15 over the life of the product and purchasers of gas-fired boilers would save, on average, an estimated \$208. The mean payback period for non-weatherized gas furnaces at TSL 2 is estimated to be 22 years, which is longer than the mean lifetime.

TSL 2 includes a standard for non-weatherized gas furnaces at 81-percent AFUE. DOE is concerned that, at this level, there is likely an increased risk of safety concerns with this equipment due to venting issues. Most manufacturers and DOJ commented that the margin of safety is diminished in many instances at 81-percent AFUE. Some manufacturers commented that they would not be willing to accept the risk and/or cost involved in producing a full line or family of products at 81-percent AFUE. This potential safety concern is a factor that the Secretary considers relevant. Based on DOE's evaluation of all the information considered during the rulemaking, DOE believes that a standard at 81-percent AFUE for non-weatherized gas furnaces could pose a potential for safety problems for some consumers.

The projected change in industry value ranges from a loss of INPV of \$136 to a loss of \$179 million. TSL 2 potentially could result in up to a nine-percent loss in INPV for the furnace industry and up to a 15-percent loss in INPV for the boiler industry. However,

DOE anticipates that manufacturers of non-weatherized gas furnaces would still be able to differentiate their premium products and retain profitability margins.

After carefully considering the results of the analysis, comments on the NOPR, and the benefits versus burdens, the Secretary concluded that at TSL 2, the benefits of energy savings and emissions impacts would be outweighed by the reduction in industry value for manufacturers and the safety concerns related to potential venting failure due to condensation with non-weatherized gas furnaces at 81 percent AFUE. Consequently, the Secretary has concluded that TSL 2 is not economically justified.

Next, DOE considered TSL A. Primary energy savings at this level is projected to be 0.25 quad of energy through 2038, which DOE considers significant. Discounted at seven percent, the energy savings through 2038 is calculated to be 0.06 quads. For the Nation as a whole, TSL A would likely result in a net savings of \$0.69 billion in NPV, discounted at seven percent. The emissions reductions are projected at 7.8 Mt of CO₂, 9.2 kt of NO_x, and 1.8 kt of SO₂. Total generating capacity in 2030 under TSL A would likely increase by 0.5 GW due to the projected switching from gas furnaces to electric heating equipment.

At TSL A, purchasers of non-weatherized gas furnaces would save, on average, an estimated \$2 over the life of the product and purchasers of gas-fired boilers would save, on average, an estimated \$208. DOE's analysis indicates that no households purchasing non-weatherized gas furnaces would experience an increase in LCC at TSL A, including southern households. The calculated mean payback periods are less than the average equipment lifetime for all product classes at TSL A. For example, the mean payback period for non-weatherized gas furnaces at TSL A is calculated to be 1.7 years.

The projected change in industry value ranges from a loss of INPV of \$48 million to a loss of \$74 million. TSL A potentially could result in up to a four-percent loss in INPV for the furnace industry and up to a five-percent loss in INPV for the boiler industry. Furthermore, DOE anticipates that manufacturers of non-weatherized gas furnaces would still be able to differentiate their premium products and retain profitability margins.

TSL A includes an 83-percent AFUE standard level for oil-fired boilers. DOE notes that the joint stakeholder recommendation for boilers suggested an 84-percent AFUE standard level (in

combination with a temperature reset design requirement) for oil-fired boilers, which is estimated to result in greater energy savings than the 83-percent level proposed in the NOPR and included in TSL A. DOE concluded that the 84-percent AFUE for oil-fired boilers was inconsistent with the other standard levels included in TSL A. TSL A was derived from TSL 2, which was described in the NOPR. As discussed in the NOPR, TSL 2 represents the set of efficiency levels, which yield the maximum NPV, and an 83-percent AFUE for oil boilers is consistent with this grouping of standard levels for analysis. 71 FR 59203.

After carefully considering the analysis, comments on the NOPR, and the benefits and burdens, the Secretary concludes that this standard saves a significant amount of energy and is technologically feasible and economically justified. DOE also believes the efficiency levels contained in TSL A do not pose a safety or health risk to consumers. Therefore, DOE is adopting the energy conservation standards for residential furnaces and boilers at TSL A.

VII. Procedural Issues and Regulatory Review

A. Review Under Executive Order 12866

This regulatory action has been determined to be a "significant regulatory action" under section 3(f)(1) of Executive Order 12866, "Regulatory Planning and Review." 58 FR 51735 (October 4, 1993). The Executive Order requires that each agency identify in writing the specific market failure or other specific problem that it intends to address that warrant new agency action, as well as assess the significance of that problem, to enable assessment of whether any new regulation is warranted. Executive Order 12866, § 1(b)(1).

In the context of furnaces and boilers, problems are expected to arise due to: (1) Lack of consumer information and/or information processing capability about energy efficiency opportunities; (2) misplaced incentives, which separate responsibility for buying new appliances and for paying their operating costs; (3) transactions costs, which prevent access to capital to finance energy efficiency investment; and (4) imperfect competition, which may prevent energy efficient appliances from reaching the market place. Furthermore, for renters in particular, there are split incentives for more energy efficient equipment. The owner of the home (landlord) may not invest in efficient equipment because the

landlord does not pay the energy bill, and the renter does not want to invest so as not to risk losing the capital investment if the renter moves. Furthermore, imperfect competition may prevent many efficient technologies from reaching the market. In this case, individual manufacturers may be limited by capital rationing or more concerned with competing under existing market conditions, than with offering a full range of energy efficient products to consumers.

Today's action also required a regulatory impact analysis (RIA) and, under the Executive Order, was subject to review by the Office of Information and Regulatory Affairs (OIRA) in OMB. DOE presented to OIRA for review the draft final rule and other documents prepared for this rulemaking, including the RIA, and has included these documents in the rulemaking record. They are available for public review in the Resource Room of the Building Technologies Program at 950 L'Enfant Plaza Drive, SW., Washington, DC 20024, (202) 586-9127, between 9 a.m. and 4 p.m., Monday through Friday, except Federal holidays.

The RIA calculates the effects of feasible policy alternatives to residential furnace and boiler standards, and provides a quantitative comparison of the impacts of the alternatives. DOE evaluated each alternative in terms of its ability to achieve significant energy savings at reasonable costs, and compared it to the effectiveness of the proposed rule. DOE analyzed these alternatives using a series of regulatory scenarios as input to the NES/Shipments Model for furnaces and boilers, which it modified to allow inputs for these measures. 71 FR 59253-59255. The complete RIA, "Regulatory Impact Analysis for Proposed Energy Conservation Standards for Residential Furnaces and Boilers," is contained in the TSD prepared for today's rule. The RIA consists of: (1) A statement of the problem addressed by this regulation, and the mandate for government action; (2) a description and analysis of the feasible policy alternatives to this regulation; (3) a quantitative comparison of the impacts of the alternatives; and (4) the national economic impacts of the proposed standards.

As explained in the NOPR, DOE determined that, with the exception of regional performance standards, which DOE has determined it lacks authority to adopt, none of the alternatives it examined would save as much energy or have an NPV as high as the proposed standards. 71 FR 59253. The same conclusions apply to the standards in this final rule. In addition, several of the

alternatives would require new enabling legislation, since authority to carry out those alternatives does not presently exist. Additional detail on the regulatory alternatives is found in the RIA report in the final rule TSD.

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires preparation of an initial regulatory flexibility analysis (IRFA) for any rule that by law must be proposed for public comment, and a final regulatory flexibility analysis (FRFA) for any such rule that an agency adopts as a final rule, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. A regulatory flexibility analysis examines the impact of the rule on small entities and considers alternative ways of reducing negative impacts. Also, as required by Executive Order 13272, "Proper Consideration of Small Entities in Agency Rulemaking," 67 FR 53461 (August 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are properly considered during the rulemaking process. 68 FR 7990. DOE has made its procedures and policies available on the Office of General Counsel's Web site: <http://www.gc.doe.gov>.

Small businesses, as defined by the Small Business Administration (SBA) for both furnace manufacturers and boiler manufacturers, are manufacturing enterprises with 750 employees or fewer. Prior to issuing the proposed rule in this rulemaking, DOE interviewed five such small businesses affected by the rulemaking.

As explained in the NOPR, DOE reviewed the proposed rule under the provisions of the Regulatory Flexibility Act and the procedures and policies published on February 19, 2003. 71 FR 59255-59256. On the basis of this review, DOE certified that the proposed rule, if promulgated, would "have no significant economic impact on a substantial number of small entities." 71 FR 59256. Therefore, DOE did not prepare an initial regulatory flexibility analysis for the proposed rule. DOE transmitted its certification and a supporting statement of factual basis to the Chief Counsel for Advocacy of the SBA for review.

DOE received no comments on the certification in response to the NOPR, and reaffirms the certification. Therefore, DOE has not prepared a final regulatory flexibility analysis for this rule.

C. Review Under the Paperwork Reduction Act

DOE stated in the NOPR that this rulemaking would impose no new information and recordkeeping requirements, and that, therefore, OMB clearance is not required under the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*). 71 FR 59256. DOE received no comments on this in response to the NOPR, and, as with the proposed rule, today's rule imposes no information and recordkeeping requirements. Therefore, DOE has taken no further action in this rulemaking with respect to the Paperwork Reduction Act.

D. Review Under the National Environmental Policy Act

DOE prepared an environmental assessment of the impacts of today's standards (DOE/EA-1530), which it published as a separate report within the TSD for this rule. DOE found the environmental effects associated with various standard efficiency levels for residential furnaces and boilers to be not significant, and therefore it is issuing a Finding of No Significant Impact (FONSI) pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), the regulations of the Council on Environmental Quality (40 CFR parts 1500-1508), and DOE's regulations for compliance with the National Environmental Policy Act (10 CFR part 1021). The FONSI is available in the docket for this rulemaking.

E. Review Under Executive Order 13132

DOE reviewed this rule pursuant to Executive Order 13132, "Federalism," 64 FR 43255 (August 4, 1999), which imposes certain requirements on agencies formulating and implementing policies or regulations that preempt State law or that have federalism implications. In accordance with DOE's statement of policy describing the intergovernmental consultation process it will follow in the development of regulations that have federalism implications, 65 FR 13735 (March 14, 2000), DOE examined the proposed rule and determined that the rule would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. 71 FR 59256. DOE received no comments on this issue in response to the NOPR, and its conclusions on this issue are the same for the final rule as they were for the proposed rule. Therefore DOE is taking

no further action in today's final rule with respect to Executive Order 13132.

F. Review Under Executive Order 12988

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, "Civil Justice Reform" 61 FR 4729 (February 7, 1996) imposes on Federal agencies the general duty to adhere to the following requirements: (1) Eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; and (3) provide a clear legal standard for affected conduct rather than a general standard and promote simplification and burden reduction. Section 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) Clearly specifies the preemptive effect, if any; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in section 3(a) and section 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, the final regulations meet the relevant standards of Executive Order 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

As described in the NOPR, Title II of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4) (UMRA) imposes requirements on Federal agencies when their regulatory actions will have certain types of impacts on State, local, and Tribal governments and the private sector. 71 FR 59256-59257. DOE concluded that, because the proposed rule would contain neither an intergovernmental mandate nor a mandate that would likely result in expenditures in the residential furnace and boiler industry of \$100 million or more in any year, the requirements of UMRA do not apply to the rule. 71 FR 59257. DOE received no comments concerning the UMRA in response to the NOPR, and its conclusions on this issue are the same for the final rule as they were for the proposed rule. Therefore, DOE is taking no further

action in today's final rule with respect to the UMRA.

H. Review Under the Treasury and General Government Appropriations Act, 1999

DOE determined that, for this rulemaking, it need not prepare a Family Policymaking Assessment under section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105-277). 71 FR 59257. DOE received no comments concerning section 654 in response to the NOPR, and, therefore, is taking no further action in today's final rule with respect to this provision.

I. Review Under Executive Order 12630

DOE determined, under Executive Order 12630, "Governmental Actions and Interference with Constitutionally Protected Property Rights," 53 FR 8859 (March 18, 1988), that today's rule would not result in any takings which might require compensation under the Fifth Amendment to the United States Constitution. 71 FR 59257. DOE received no comments concerning Executive Order 12630 in response to the NOPR, and, therefore, is taking no further action in today's final rule with respect to this Executive Order.

J. Review Under the Treasury and General Government Appropriations Act, 2001

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note) provides for agencies to review most disseminations of information to the public under guidelines established by each agency pursuant to general guidelines issued by OMB. The OMB's guidelines were published at 67 FR 8452 (February 22, 2002), and DOE's guidelines were published at 67 FR 62446 (October 7, 2002). DOE has reviewed today's final rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," 66 FR 28355 (May 22, 2001) requires Federal agencies to prepare and submit to the Office of Information and Regulatory Affairs of the OMB a Statement of Energy Effects for any significant energy action. DOE determined that the proposed rule was not a "significant energy action" within the meaning of Executive Order 13211. 71 FR 59257. Accordingly, it did not prepare a Statement of Energy Effects on

the proposed rule. DOE received no comments on this issue in response to the NOPR. As with the proposed rule, DOE has concluded that today's final rule is not a significant energy action within the meaning of Executive Order 13211, and has not prepared a Statement of Energy Effects on the rule.

L. Review Under the Information Quality Bulletin for Peer Review

On December 16, 2004, OMB, in consultation with the Office of Science and Technology Policy (OSTP), issued its Final Information Quality Bulletin for Peer Review (the Bulletin). 70 FR 2664, January 14, 2005. The Bulletin establishes that certain scientific information shall be peer reviewed by qualified specialists before it is disseminated by the Federal government, including influential scientific information related to agency regulatory actions. The purpose of the Bulletin is to enhance the quality and credibility of the Government's scientific information.

DOE's Office of Energy Efficiency and Renewable Energy, Building Technologies Program, held formal in-progress peer reviews covering the analyses (e.g., screening/engineering analysis, LCC analysis, MIA, and utility impact analysis) used in conducting the energy efficiency standards development process on June 28-29, 2005. The in-progress review is a rigorous, formal, and documented evaluation process using objective criteria and qualified and independent reviewers to make a judgment of the technical/scientific/business merit, the actual or anticipated results, and the productivity and management effectiveness of programs and/or projects. The Building Technologies Program staff is preparing a peer review report which, upon completion, will be disseminated on the Office of Energy Efficiency and Renewable Energy's Web site and included in the administrative record for this rulemaking.

M. Review Under Executive Order 12898

DOE considers environmental justice under Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." 59 FR 7629 (February 16, 1994). The Executive Order requires Federal agencies to assess whether a proposed Federal action causes any disproportionately high and adverse human health or environmental effects on low-income or minority populations. DOE evaluated the socioeconomic effects of standards on low-income households and found

that they are similar to the impacts on the rest of the population.

N. Congressional Notification

As required by 5 U.S.C. 801, DOE will submit to Congress a report regarding the issuance of today's final rule prior to the effective date set forth at the outset of this notice. The report will state that it has been determined that the rule is a "major rule" as defined by 5 U.S.C. 804(2). DOE also will submit the supporting analyses to the Comptroller General in the U.S. Government Accountability Office (GAO) and make them available to each House of Congress.

VIII. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this final rule.

List of Subjects in 10 CFR Part 430

Administrative practice and procedure, Energy conservation, Household appliances.

Issued in Washington, DC, on November 8, 2007.

Alexander A. Karsner,
Assistant Secretary, Energy Efficiency and Renewable Energy.

■ For the reasons set forth in the preamble, part 430 of Title 10, Code of Federal Regulations, is amended to read as set forth below.

PART 430—ENERGY CONSERVATION PROGRAM FOR CONSUMER PRODUCTS

■ 1. The authority citation for part 430 continues to read as follows:

Authority: 42 U.S.C. 6291–6309; 28 U.S.C. 2461 note.

■ 2. Section 430.32 is amended by revising the section heading and paragraph (e) to read as follows:

§ 430.32 Energy and water conservation standards and their effective dates.

* * * * *

(e) *Furnaces.* (1) Non-weatherized and weatherized gas furnaces, mobile home gas furnaces, oil-fired furnaces, and gas- and oil-fired boilers, manufactured before November 19, 2015 and all other types of furnaces, shall have an efficiency no less than:

Product class	AFUE ¹ (percent)	Effective date
(i) Furnaces (excluding classes noted below) (percent)	78	01/01/92
(ii) Mobile Home Furnaces	75	09/01/90
(iii) Small furnaces (other than furnaces designed solely for installation in mobile homes) having an input rate of less than 45,000 Btu/hr:		
(A) Weatherized (outdoor)	78	01/01/92
(B) Non-weatherized (indoor)	78	01/01/92
(iv) Boilers (excluding gas steam) (percent)	80	01/01/92
(v) Gas steam boilers (percent)	75	01/01/92

¹ Annual Fuel Utilization Efficiency, as determined in § 430.22(n)(2) of this part.

(2) Non-weatherized and weatherized gas furnaces, mobile home gas furnaces, oil-fired furnaces, and gas- and oil-fired boilers, manufactured on or after November 19, 2015, shall have an efficiency no less than:

Product class	AFUE ¹ (percent)
(i) Non-weatherized gas furnaces	80
(ii) Weatherized gas furnaces	81
(iii) Mobile home gas furnaces	80
(iv) Oil-fired furnaces	82
(v) Gas hot-water boilers	82
(vi) Oil-fired hot-water boilers	83

¹ Annual Fuel Utilization Efficiency, as determined in § 430.22(n)(2) of this part.

* * * * *

Appendix

[The following letter from the Department of Justice will not appear in the Code of Federal Regulations.]

Department of Justice

Antitrust Division, Main Justice Building,
950 Pennsylvania Avenue, N.W.,
Washington, DC 20530–0001, (202) 514–
2401/(202) 616–2645 (Fax), E-mail:
antitrust@usdoj.gov, Web site: *http://www.usdoj.gov/atr*.

January 16, 2007.

Warren Belmar, Esq., Deputy General Counsel for Energy Policy, U.S. Department of Energy, Washington, DC 20585.

Dear Deputy General Counsel Belmar:

I am responding to your November 14, 2006 letters seeking the views of the Attorney General about the potential impact on competition of proposed energy efficiency standards relating to (1) liquid-immersed and medium-voltage, dry-type distribution transformers ("distribution transformers"), and (2) residential furnaces and boilers ("furnaces and boilers"). The Energy Policy and Conservation Act ("EPCA") authorizes the Department of Energy ("DOE") to establish energy conservation standards for a number of appliances where DOE determines that those standards would be technologically feasible, economically justified, and result in significant energy savings.

Your requests were submitted pursuant to Section 325(o)(2)(B)(I) of the Energy Policy and Conservation Act, 42 U.S.C. 6291, 6295 ("EPCA"), which states that, before the Secretary of Energy may prescribe a new or amended energy conservation standard, the Secretary shall ask the Attorney General to make a determination of "the impact of any lessening of competition * * * that is likely to result from the imposition of the standard." The Attorney General's responsibility for responding to requests from other departments about the effect of a program on competition has been delegated

to the Assistant Attorney General for the Antitrust Division in 28 CFR 0.40(g). In conducting its analysis the Antitrust Division examines whether a standard may lessen competition, for example, by placing certain manufacturers of a product at an unjustified competitive disadvantage compared to other manufacturers, or by inducing avoidable inefficiencies in production or distribution of particular products. In addition to harming consumers directly through higher prices, these effects could undercut the ultimate goals of the legislation.

Your requests included the Notices of Proposed Rulemaking ("NOPR") that were published in the **Federal Register** and transcripts of public hearings relating to the proposed standards. The NOPR relating to distribution transformers proposed Trial Standard Level 2 and explained why DOE had decided not to propose higher trial standard levels. The NOPR relating to furnaces and boilers proposed the following standards: 80% annual fuel utilization efficiency ("AFUE") for non-weatherized gas furnaces and mobile home gas furnaces; 82% AFUE for oil-fired furnaces; 83% AFUE for weatherized gas furnaces and oil-fired boilers; and 84% AFUE for gas boilers. Our review regarding distribution transformers and furnaces and boilers has focused upon the standards DOE has proposed adopting; we have not determined the impact on competition of more stringent standards than those set forth in the NOPRs.

In addition to the NOPRs and transcripts, your staff provided us comments that had

been submitted to DOE regarding the proposed standards. (We understand that the docket has not closed with respect to furnaces and that more comments may be forthcoming.) We have reviewed these materials and additionally conducted interviews with members of the industries.

Based on this inquiry, the Division is concerned that the distribution transformer Trial Standard Level 2 may adversely affect competition with respect to distribution transformers used in industries, such as underground coal mining, where physical conditions limit the size of equipment that can be effectively utilized. We understand manufacturers would not be able to satisfy the proposed standard without increasing the size (or decreasing the power) of each class of distribution transformer. Firms facing space constraints would incur significantly increased costs due to enlarging the required installation space (which, for example, could involve removal of solid rock around coal

seams in underground mines) or reconfiguring the size and number of each class of distribution transformers at each site. The resulting cost increases could constitute production inefficiencies that could make certain products less competitive. For example, the rule could, by raising the costs of certain coal mines, adversely affect production decisions at those mines and potentially result in increased use of less efficient energy alternatives. We urge the DOE to consider these concerns carefully in its analysis, and to consider creating an exception for distribution transformers used in industries with space constraints.

The Division is also concerned that the standards for weatherized gas furnaces and gas boilers could adversely affect competition. We understand that manufacturers would have difficulty designing products that safely meet the proposed standards. For weatherized gas furnaces, meeting the standard would likely

result in increased condensation, potentially resulting in significant deterioration that would jeopardize the safety of the product, and, for weatherized gas-fired water boilers, meeting the standard would make effective carbon dioxide venting more difficult. Any resulting costs incurred to solve these issues could adversely affect the competitiveness of these products in relation to electric heat pumps and water heaters. We urge the DOE to carefully consider its proposed standards in light of these concerns.

Aside from the discussion above, the Division does not otherwise believe the proposed standards would adversely impact competition.

Yours sincerely,

J. Bruce McDonald,
Acting Assistant Attorney General.

[FR Doc. E7-22216 Filed 11-16-07; 8:45 am]

BILLING CODE 6450-01-P

Division Data Request DIV 8-18

Request:

Re: pages 9-12 of the direct testimony of witness Mongan. Given (1) that natural gas is “inherently a cleaner fuel than heating oil,” (2) the claimed greater energy efficiency of natural gas heating equipment, and (3) the present economic advantages related to the relative costs of natural gas and heating oil supplies, and (4) the mandated requirements for the Rhode Island Office of Energy Resources to “promote, encourage and assist the efficient and productive use of energy resources ...,” please explain why a more proactive gas marketing program by the Company is necessary at this time.

Response:

The core objective of the Company’s Gas Marketing Program is to provide customers with full, accurate and fair information about their heating alternatives and to provide them with a choice when presented with the need to replace their heating and/or hot water systems. In order to accomplish this objective, the Company is seeking approval for a program that will allow the Company to maintain a continuity of communications with customers on the value and benefits of natural gas and to enable customers to participate in offerings that will partially offset some of the costs to convert.

As stated in response to Data Request DIV 8-13(b), the Company’s programs are not designed to hinge upon temporary variances in fuel pricing or other external factors. The Company’s main focus is on the representation of the value and benefits of natural gas in a market where oil has an established broad-based program for communicating its messages in order to ensure that the interests of all customers in having reasonable rates for gas service are furthered.

Division Data Request DIV 8-19

Request:

Re: page 12, lines 11-13 of the direct testimony of witness Mongan, please:

- a. Provide the data, analyses, and studies upon which the witness bases his assessment that “There is no potential for the Gas Marketing Program to impact the national and global supply-demand balance and cause price increases or volatility.”
- b. Provide the data, analyses, and studies upon which the witness would rely to assess the impacts of increased natural gas use in Rhode Island on:
 - i. Prices for daily spot purchases of gas in New England, particularly during periods of extreme weather; and
 - ii. The availability of, and prices for, (1) pipeline capacity entitlements for the delivery of natural gas into Rhode Island and (2) local natural gas peaking resources.

Response:

a. The Company has no analyses or studies of the potential impact of the additional load on the national or global market. The data available indicates that the Rhode Island market is less than 1% of the US market and the impact of the proposed Gas Marketing Program will increase that by less than 1%. This is a negligible level that should have no discernible impact on national spot market prices under any weather circumstances. In addition, a portion of this new load will be offset by improvements in energy efficiency and other factors which reduce natural gas demand such as the decline in average degree days as a result of the observed rise in average temperatures and the long term decline in persons per household.

b. (i) As stated in item (a), the incremental impact of the proposed programs will add less than 1% of the annual load forecasted by the Company and at least a portion of the increase will be offset by expected reductions. While daily spot prices in New England have shown a tendency to spike higher during periods of exceptionally cold weather in recent winters, the impact of these customers will be quite small, especially when compared to other loads on the system.

(ii) The Company has adequate pipeline capacity to meet its projected requirements including the additional load associated with this program. Because the Company has no plans to add capacity beyond what it is already planned, the additional

load would have no impact on the prices for pipeline capacity to Rhode Island. Likewise, the Company has adequate local peaking resources and does not anticipate that the small net increase in load from this program will result in reduced availability or higher prices for its peaking supply resources. To the extent either past or future declines in customer use act as a source of the capacity, this program would be expected to reduce costs to customers.

Division Data Request DIV 8-20

Request:

Re: page 13, lines 13-18 of the direct testimony of witness Mongan, please provide:

- a. The number of “low-use, existing gas customer” in each rate class who are already connected to the Company’s system through a previously installed service;
- b. The number of “low-use, existing gas customer” in each rate class who are already connected to the Company’s system through a previously installed service and have the reasonably economic potential to expand their gas use;
- c. The number of potential “new customers” who are located on the Company’s existing distribution system and are seeking to replace appliances or heating equipment that is not gas-fired.

Response:

- a. The number of “low-use, existing gas customers” in each rate class are as follows:

<i>Low-use Prospects</i>	Rate Code	
Residential		
Single Family Residential	1012	24,200
Multi-family (2-5 Family)	1012	6,500
		30,700
Commercial		
Multi-family (6 +)	1012	1,271
Small & Medium (summer use > 31% annual use)	2107	2,366
	2221	50
	2231	4
	2237	895
	22EN	81
Large & Extra Large	2321	7
	2367	45
	23EN	29
	2421	1
	2496	9
	24EN	28
	58EN	1
		4,787

- b. The Company does not collect or possess economic data or customer information that could be used to assess a customer’s “reasonably economic potential to expand their gas use.” The factors that weigh into the economics of gas conversion for each customer are known only to the customer.

- c. The Company maintains a list of potential “new customers” or prospects. Attachment DIV-8-20(c) provides this list. The data does not reflect the current needs of customers regarding replacements of appliances or heating equipment because the Company does not have access to this type of information. The Company’s projections are based on the assessment that heating systems last approximately 15-25 years based on conversations with contractors, distributors and manufacturers. As a result, approximately 5% of customers would need to make a decision each year to replace their heating systems.

	Rhode Island (Includes Electric Heat)	Rhode Island (Excludes Electric Heat)
Residential 1-5 Family*		
Heating Meters	176,721	176,721
Low Use Meters	30,728	30,375
Low Use Meters not in Heat Structures	25,769	25,523
Heating Structures	149,082	149,082
Low Use Structures	23,966	23,752
Total Structures Connected	173,048	172,834
Pure Prospect Structures 1-5 Family*		
On Main	25,204	23,886
< 100'	13,689	13,010
100'-200'	19,187	17,795
200'-500'	13,249	12,351
>500'	64,221	58,466
Total Structures Unconnected	135,550	125,508
Total Residential Structures	308,598	298,342
Gas Heating Saturation	48.31%	49.97%
MultiFamily 6 and up**		
Heating Meters	12,715	12,715
Low Use Meters	1,170	1,123
Low Use Meters not in Heat Structures	515	506
Heating Structures	1,018	1,018
Low Use Structures	68	67
Total Structures Connected	1,086	1,085
Pure Prospect Structures M/F 6 and up**		
On Main	131	92
< 100'	41	15
100'-200'	121	63
200'-500'	54	41
>500'	117	81
Total Structures Unconnected	464	292
Total M/F Structures	1,550	1,377
Gas Heating Saturation	65.68%	73.93%
Commercial		
Heating Meters	17,450	17,450
Non-Heating Meters	5,522	5,246
Non-Heating Meters not in Heat Structures	3,566	3,508
Heating Structures	11,702	11,702
Non Heat Structures	3,473	3,424
Total Structures Connected	15,175	15,126
Pure Prospect Commercial Structures		
On Main	2,668	1,952
< 100'	880	787
100'-200'	2,494	1,473
200'-500'	646	464
>500'	4,651	2,628
Total Structures Unconnected	11,339	7,304
Total Commercial Structures	26,514	22,430
Gas Heating Saturation	44.14%	52.17%
Pure Prospect Businesses (Accounts) ***		
On Main	3,623	2,787
< 100'	1,312	1,184
100'-200'	3,489	2,194
200'-500'	881	657
>500'	5,960	3,501
Total Businesses (Accounts) Prospects	15,265	10,323

* Upstate NY is 1-3 Family

** Upstate NY is 4 family and up

*** Note Pure Prospect Business Counts are based on Info USA in RI and Electric Data in Upstate NY

Division Data Request DIV 8-21

Request:

Re: page 14, lines 1-3 of the direct testimony of witness Mongan, please detail all plans of the Company to expand its distribution mains into areas within Rhode Island that do not presently have gas service within the Company's current and next three fiscal years.

Response:

The Gas Marketing Program does not apply to new extensions. The program applies to on-system customers only. As is the case today, there will be ongoing opportunities for customers to connect to the system through specific main extension projects. These projects would be subject to applicable CIACs and are not part of the Gas Marketing Program.

Division Data Request DIV 8-22

Request:

Re: page 15, lines 11-15 of the direct testimony of witness Mongan, please detail the Company's plans to "seek out" larger C&I customers to obtain new or expanded gas use, and provide the estimate costs of such efforts for the Company's current and next three fiscal years.

Response:

The Company will accomplish this task in several ways.

First, through the Company's target marketing efforts referenced in Exhibit NG-SPM-1 (as O&M expense), efforts will be made through prospect lists to assess the relative size of companies using business types, employee levels, revenue levels and property sizes to rank prospects from largest to smallest in terms of energy use.

In addition, the Company has an existing Account Management organization providing services to the largest C&I customers. This will provide a means through the Account representatives normal support services to evaluate potential for new or expanded gas use. There is no intent increase to these resources.

Division Data Request DIV 8-23

Request:

Re: page 16, lines 13-15 of the direct testimony of witness Mongan, please:

- a. Detail the nature of the “link” that the Company intends to create with qualified plumbing and heating contractors; and
- b. Describe in detail and provide examples of any contractual or other financial arrangements that the Company would have with such plumbing and heating contractors.
- c. Please indicate if any affiliated entities would be included among the “qualified plumbing and heating contractors” that the Company would refer to customers.

Response:

a. The link that the Company intends to create with qualified plumbing and heating contractors is primarily through the creation of a Trade Ally program to manage communications and support for contractors that complete gas installations in Rhode Island. In addition, the Company is providing a program – Value Plus Installer (VPI) Program – to contractors that are qualified to do plumbing and heating work in the communities the Company serves. The VPI program requires registration and, through the program, qualified leads are released to contractors through an appointment process. The appointment process is based upon individual customer request and the appointments are managed through an automated rotation for equal distribution to the registered contractors.

b. Attachment DIV-8-23(b) is a description of the Value Plus (Installer) Program including: (a) information on benefits of the program; (b) how a contractor would apply; (c) insurance requirements; (d) associated areas of geography for leads (Lead Distribution Areas-LDA’s); (e) associated fees for LDA’s; and (f) a VPI Agreement Form that spells out the obligations of the Contractor and National Grid.

c. An affiliate of the Company would be eligible to participate if it complied with all of the same rules and program requirements as other qualified plumbing and heating contractors. The design of the program ensures that no advantage inures to the benefit of the affiliate and that there is a level playing field for all participants.



WELCOME TO THE VALUE PLUS INSTALLER PROGRAM

June 25, 2008

Dear Contractor,

Thank you for your interest in National Grid Value Plus Installer (VPI) Program. This program offers contractors the unique opportunity to receive qualified leads for the installation of natural gas heating and water heating equipment for residential prospects. This guide provides details on how you can get involved to grow your business. Once you've reviewed the materials, I'm confident that you'll be interested in becoming a VPI.

Some of the great benefits of the VPI program include:

- Qualified leads received by phone, fax or email in your selected area
- Discounted Heating Equipment – ordered quickly
- Cooperative Advertising up to 50% off
- Support from National Grid's Trade Relations Managers

Enclosed in the package is more information about the program and the documents needed to become a VPI. If you're interested in joining the program, please review, execute and return the enclosed documents which include the VPI Agreement – Appendix A, Lead Distribution Area Form – Appendix B, Insurance Requirements – Appendix C, and VPI Profile – Appendix D

Of course, it is solely up to you if this is a good business decision for your company. But rest assured that whatever your decision, National Grid's Trade Relations team remains at your service.

I look forward to working with you.

Best regards,

Lisa Degregory
Manager of Trade Relations South
National Grid
Office 781-466-5349
ldegregory@keyspanenergy.com

Jeffrey Marshall
Manager of Trade Relations North
National Grid
Office 781-466-5256
jmarshall@keyspanenergy.com

The Trade Relations Team

National Grid offers customers incentives to convert to natural gas heat. Customers are serviced through a combination of efforts between sales and the trade. Our residential sales team is responsible for accelerating the growth and development of the natural gas market by qualifying each conversion prospect and communicating the benefits of heating with natural gas as well as any conversion and energy savings offers.



Sales forwards prospect information for those interested in meeting with a Value Plus Installer (VPI) to Inside Sales who assign leads through a rotation system. Trade Relations managers oversee the VPI Program and assist contractors by coordinating training, resolving issues and assisting with selling heating conversions.

Trade Relations Managers

Vinny Best, Braintree
781-794-3515
vbest@keyspanenergy.com

Jerry Lewandowski, Malden
781-338-2804
jlewandowski@keyspanenergy.com

Rick Pelletier, New Hampshire
603-222-3762
rpelletier@keyspanenergy.com

Mark Herring, Leominster
978-514-6005
mherring@keyspanenergy.com

Andy Winters, Malden
617-293-1551
awinters@keyspanenergy.com

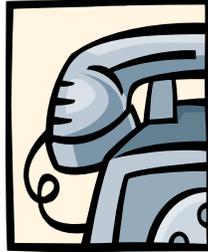
Diane Geaber, Rhode Island
401-525-5640
diane.geaber@us.ngrid.com

Trade Relations Coordinator

Lynn Moore 781-466-5386 lynn.moore@us.ngrid.com Fax: 781-890-7934

Phone Numbers & Program Steps

Phone Numbers



Safety

Leak MA & NH: 800-231-5325

Leak RI: 401-831-8800

Dig Safe: 1-888-Dig-Safe (344-7233)

Billing, Service & Meter Sets

Greater Boston 800-532-9600

Lowell & Cape Cod 800-548-8000

New Hampshire 800-262-4111

Rhode Island 401-831-8800

Other

New Customers 800-GAS-2001

Info on Services/Meter Work 877-KEY-2GAS

Conversion Offers 800-755-4427

Energy Efficiency 800-292-2032

Gas Theft 617-723-5512 Ext. 6133

Interpreting Services: 617-469-2300

TDD Services: 800-322-5216

VPI Program Steps

- ✓ Step 1
Execute the enclosed agreement and contractor profile.
- ✓ Step 2
Respond to qualified lead appointments as assigned.
- ✓ Step 3
Report all closed leads and equipment orders.
- ✓ Step 4
Install equipment and report the date of installation.
- ✓ Step 5
Track your conversions and closure rate.



Discounted Heating Equipment

National Grid offers discounted heating equipment to homeowners who convert to natural gas heat. Equipment Order forms list current models and prices.

- To order discounted equipment, a completed equipment order form signed by both the installer and the customer should be faxed to **781-890-7981**.
 - Call **800-755-4427** for any questions about your order or to request an order form.
-

- The following information is required on the contract to order discounted equipment:
 - ✓ Contractor's name, address and contact information
 - ✓ Premise address of installation, owner's name (and address if different), phone number and meter number
 - ✓ Number of units in dwelling
 - ✓ Indicate if job is an emergency replacement
 - ✓ Manufacturer Model Number/BTU input
 - ✓ Customer signature
 - ✓ Indicate meter/service upgrade needs
 - ✓ Certificate of insurance
 - ✓ Credit card number and expiration date or a check in the amount of the customer contribution

Please note the following program guidelines:

- Equipment will not be released prior to payment.
 - Installation of gas service line will not be scheduled prior to receipt of equipment order form.
 - It is the contractor's responsibility to contact the distributor to arrange for delivery or pickup of equipment.
 - Distributors will invoice National Grid for the equipment.
 - All discounted equipment must be installed **within 14 days of delivery**.
 - Contractors will be invoiced for all equipment not installed within these guidelines.
 - Contractors with incomplete installations from previous discounted equipment orders will not be issued any new equipment until all guidelines are met.
 - It is the contractor's responsibility to notify Trade Relations of any changes or cancellations on equipment.
-

Please be sure to use your VPI equipment order form once you join the program. These Equipment Order forms receive priority handling at National Grid and are processed prior to general equipment order forms. VPI forms will have the VPI logo in the right hand corner.

Equipment Order Forms are updated periodically as manufacturer equipment models change. Please see your Trade Connection newsletter, which you will receive by mail quarterly, for the latest forms. Trade Connection is a helpful tool to keep you informed about National Grid.



Cooperative Advertising

Advertising works! National Grid runs three major campaigns throughout the year. As a VPI, you can also participate in our Cooperative advertising program and save. Now your advertising can work even harder and cost less.

Complete, ready-to-use ads in a variety of sizes are available as well as a sheet of camera-ready Value Plus Installer logos. These materials are designed to take advantage of National Grid outstanding advertising and brand recognition and are only available to Value Plus Installers. Our publication-ready ad slicks make your advertising look like National Grid promoting powerful incentives for natural gas conversions. Plus we will reimburse up to 50% of the cost.

Guidelines

National Grid will pay up to 50% of the charges for advertising space and time for approved direct mail and media up to the annually funding limit. Ad placements must be pre-approved by National Grid, so please contact your Trade Relations Manager before placing your ad.

After your ad has run, please submit the following to receive reimbursement:

- ✓ Your ORIGINAL paid media invoice, and
- ✓ A SAMPLE of the advertising (original tear sheet of the newspaper page where your ad ran, samples of printed flyers, etc.)

National Grid will not create ads for individual contractors. We urge you to consider using one of the publication-ready ads available. Any ad not provided directly by National Grid must be approved. Please call for further assistance or to obtain a referral for a vendor to help you develop an ad.

Exclusions

Items which do not qualify for reimbursement under National Grid co-op advertising are: ad agency fees, advertising production, media discounts, prizes or incentives, imprinted items -- calendars, signs, jackets, caps, etc., holiday greetings, dealer announcements, community events and Yellow Page ads.

- ✓ Co-op funds are available to advertise new products only, used equipment does not qualify.
- ✓ Multi-product ads must promote the gas products in a significant manner to be eligible.
- ✓ Merely including the Value Plus Installer logo is not significant promotion and will not be eligible for co-op funds.
- ✓ Only the portion of advertising utilized for gas products, excluding dealership information will qualify for co-op.
- ✓ All advertising must feature the installer's name and authorized logo in addition to product information copy.
- ✓ Yellow Page advertising is NOT eligible for co-op funds. However you may choose to include the National Grid Value Plus logo in your Yellow Page ad to distinguish your company.

Value Plus Installers can grow their business through advertising. National Grid makes it easy and cost-effective with our cooperative advertising program

VPI Agreement: Residential 1-5 Family -- APPENDIX A

This Value Plus Installer Agreement, (the "Agreement") dated _____ is made and entered into:

Between: **The Narragansett Electric Company, d/b/a National Grid** (hereinafter "National Grid")
52 Second Avenue Waltham, MA 02451

And:

Name of Firm: _____

Type of Firm: Corporation Partnership Sole Proprietorship

Mailing Address: _____

Business Phone: _____

Fax: _____

Email: _____

WITNESSETH THAT:

- a. National Grid is engaged in the distribution of natural gas in its franchise territory located in Eastern Massachusetts, New Hampshire and Rhode Island.
- b. National Grid is implementing a Value Plus Installer program which seeks to enhance and improve customer satisfaction and relations through the distribution of certain customer leads to participating heating system installation contractors (the "Contractor") as more fully described herein (the "Program"); and
- c. The Contractor is interested in participating in the Program.

NOW, THEREFORE, in consideration of the mutual promises and covenants herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

1. LEAD DISTRIBUTION AREAS

(a) For the purposes of this Agreement, the term "Customer" means a National Grid gas customer or prospective Gas customer. The term "Customer Lead" means a request or inquiry received by National Grid from a Customer concerning the possible purchase and/or installation of gas-fired space or hot water heating equipment.

(b) Appendix B to this Agreement, attached hereto and made a part hereof; contains a map of National Grid's service territory divided into different sections numbered 101-304, called Lead Distribution Areas ("LDA"). From April 1, 2008 through to and including March 31, 2009 ("Contract Term"), National Grid agrees to distribute to Contractor, Customer Leads from Customers located in each of the LDAs purchased by Contractor. The Contractor hereby purchases the following LDAs:

(c) _____ (list all LDAs selected).

(d) Lead Distribution fees are listed in Appendix C of this Agreement. Contractors who have maintained a customer satisfaction rating of at least 86% and a Sales Closure Rate of at least 25% of the Total Lead Closure Rate for the past twelve months, or who have performed VPI services in good standing for the last three years, will be eligible to participate at a discounted rate. National Grid will maintain records of customer satisfaction surveys and closure rate data and will provide same to contractor upon request.

2. NATIONAL GRID OBLIGATIONS

(1) National Grid shall:

- (a) Schedule Customer Lead appointments with Customers via an automated rotation within each LDA and distribute Customer Leads to Contractors;
- (b) Notify the Contractor of Customer Leads indicating the name and address of the Customer, and the type of work requested by the Customer;

- (c) Periodically provide updates on Value Plus Program statistics and developments;
- (d) Evaluate generally the quality of the Contractor's work, overall performance and the Customer's satisfaction with same.

3. CONTRACTOR'S OBLIGATIONS

- (a) The Contractor agrees to participate in the Program subject to the terms and conditions contained in this Agreement.
- (b) Contractor shall:
 - (i) arrive on time for its Customer Lead appointments;
 - (ii) perform the work identified by National Grid in Customer Leads in a timely manner;
 - (iii) Carry and maintain during the entire term of this Agreement, the insurance coverage set forth in Appendix D, attached hereto and made a part hereof;
 - (iv) Provide National Grid with copies of all licenses and insurance policies required by this Agreement prior to the receipt of the first Customer Lead and thereafter upon National Grid's request;
 - (v) Contractor is responsible for following up with their Trade Ally Representative on the status of each lead.
 - (vi) provide Customers (and National Grid if so requested) with written price quotes itemizing all major mechanical components, taxes, labor charges, delivery charges, and the total price to the Customer;
 - (vii) Furnish Customers a copy (if so required) of the applicable house heating survey for every gas equipment sale;
 - (viii) make any and all filings required by, and otherwise generally comply with the requirements of, applicable Federal, State and local laws, rules and regulations in its performance of work hereunder appropriate for all equipment installations, and complying with such laws, rules and regulations that apply to asbestos removal, to the extent applicable to Contractor's work hereunder. At the request of National Grid, Contractor will furnish National Grid certificates to the effect that it has complied with requirement of this paragraph (viii), such certificates shall be in form and substance satisfactory to National Grid;

4. CONTRACTOR WARRANTIES AND REPRESENTATIONS

Contractor hereby represents and warrants that it is properly licensed and insured to perform gas equipment installations and/or conversions in the locations where contractor is performing said work.

5. ETHICAL BUSINESS CONDUCT

The Contractor represents and warrants that, at all times while conducting its business under this Agreement, it shall do so in a good and ethical manner. Furthermore, the Contractor, on behalf of itself and its agents, servants, employees and subcontractors, warrants that no gratuity, payment, gift, service or other item of value has been or will be offered to any National Grid employee or to any family member or agent of a National Grid employee. Whether authorized or not and whether or not intended to influence, the tendering of any such gratuity, payment, gift, service or other item of value to any employee of National Grid or to any family member, or agent of such employee, is an act of default, and shall give rise to an immediate right of cancellation by National Grid of this agreement.

6. INSPECTIONS

Contractor recognizes and understands that the underlying purpose and goal of the Program is to improve Customer satisfaction. Accordingly, Contractor agrees that National Grid may perform inspections of work performed by Contractor under this Agreement and agrees to cooperate with National Grid in connection therewith for the purpose of permitting National Grid to evaluate the quality of Contractor's work, overall performance and Customers' satisfaction with same.

7. DISCLAIMER

National Grid makes no warranty whatsoever with regard to the number or types of Customer Leads Contractor will receive under this Agreement or that any Customer Leads will result in a sale or Customers requesting work be performed by Contractor. Contractor recognizes and understands that if Customers decide to purchase gas equipment or that work be performed, Customers are free to select someone other than Contractor to make such sale or perform such work. Contractor also recognizes and understands that National Grid is entering into agreements with other Contractors relating to the dissemination of Customer Leads and that National Grid also will be providing Customer Leads (which contracts may include one or more of the selected LDAs) to such Contractor. Leads that do not close may be redistributed to Contractors based upon National Grid's discretion. Contractors who demonstrate superior performance by maintaining a Sales Closure Rate of at least 50% of the Total Lead Closure Rate or by consistently outperforming all other contractors within an LDA (as measured by customer satisfaction and lead closure rate reports) may be awarded with an additional spot in the automated rotation for that particular LDA.

8. INDEMNITY

Contractor shall to the fullest extent permitted by law defend, indemnify and hold National Grid its parents, subsidiaries, and affiliated companies and their respective officers, directors, employees, and agents harmless from and against any and all claims, liability, judgments, losses, costs and expenses (including, but not limited to, attorneys' fees and court costs) incurred by National Grid arising

out of, or in any way related to Contractor's work under this Agreement, except if such claims, liability, judgments, losses, costs, and expenses result from the sole negligence of National Grid. This paragraph shall survive the termination of this Agreement.

9. TERM

The Agreement shall have a twelve-(12) month term, commencing on April 1, 2008.

10. NOTICES AND CORRESPONDENCE

Except as otherwise provided for herein, all notices required under this Agreement shall be sent by either party to the other party by hand, certified mail, or overnight carrier.

A. To National Grid: 52 Second Ave Waltham MA 02451 Attn: Lisa Degregory or Jeffrey Marshall

B. To the Contractor: Firm Name: _____
Mailing Address: _____
Attn: _____

11. ASBESTOS

The Contractor shall comply with all applicable Federal, State and local laws, rules and regulations regarding asbestos including, but not limited to, inspection, removal, and disposal requirements.

12. CONTRACTOR'S WARRANTY AS TO WORK

All work performed by Contractor under this Agreement shall be: (i) performed in a good and workmanlike manner in accordance with the highest applicable industry standards and engineering practices including, but not limited to the Massachusetts Fuel Gas Code and all applicable National Grid standards, policies and procedures; and (ii) free from defects in materials and workmanship for a minimum period of one year after installation and stated on customer's contract. In addition, the Contractor shall assign any manufacturers' warranties pertaining to any equipment installed by the Contractor for the benefit of the Customer (to the extent that such warranties are assignable) and agrees to enforce said warranties for the Customer's benefit.

13. GENERAL PROVISIONS

13.1 ASSIGNMENT

This Agreement shall not be transferred or assigned by the Contractor without the prior written consent of National Grid.

13.2 CHANGES

National Grid may at any time, by written notice, make changes in the work to be performed under this Agreement, including but not limited to changes in the schedule, hours, changes regarding qualification standards contained on the Attachments and volume of Customer Leads. National Grid shall endeavor to provide the Contractor with thirty (30) days prior written notice in the event of such changes.

13.3 GENERAL RELATIONSHIP

In all matters relating to this Agreement, the Contractor shall be acting as an independent contractor. Without limiting the foregoing, neither the Contractor nor employees of Contractor, if any, shall be deemed employees of National Grid under the meaning or application of any Federal or State unemployment or insurance laws or worker's compensation laws, or otherwise. The Contractor assumes all liabilities and obligations imposed by any one or more of such laws with respect to employees of the Contractor, in the performance of this Agreement. The Contractor shall not have any authority to assume or create any obligation, express or implied, on behalf of National Grid and the Contractor shall have no authority to represent itself as an agent, employee, or in any other capacity on behalf of National Grid.

13.4 PARTIAL INVALIDITY

In the event that any clause, sentence, paragraph, section or part of this Agreement shall be deemed invalid, unenforceable or against public policy, it shall not affect, impair, invalidate or nullify the remainder of this Agreement, but the effect thereof shall be confined to the clause, sentence, paragraph, section or part of this Agreement so invalidated, unenforceable or against public policy. The parties expressly recognize and agree that this Agreement is made subject to all applicable laws.

13.5 NON-WAIVER

The failure to enforce at any time any of the provisions of this Agreement, or to require at any time performance by the other party of any of the provisions hereof, shall in no way be construed to be a waiver of such provisions.

13.6 FORCE MAJEURE

National Grid shall not be liable for any delay in the performance of its obligations under this Agreement due to revolutions, insurrections, riots, wars, acts of enemies, national emergency, fires, strikes, labor disputes, delays in transportation, acts of God or by any other cause not within the control of National Grid. The existence of such cause of delay shall extend the time of performance on the part of National Grid to such extent as may be necessary to enable National Grid, to perform its obligations hereunder in the exercise of reasonable diligence.

13.7 TERMINATION OR SUSPENSION

National Grid reserves the right to terminate or suspend this Agreement without penalty to National Grid for any reason upon five days advance written notice to the Representative hereunder. Reasons for termination/suspension include but are not limited to quality of work, customer satisfaction, equipment application and sales proficiency.

13.8 CONFIDENTIAL MATTERS

The Contractor acknowledges that any information furnished to it during the term of this Agreement is considered proprietary and confidential to National Grid. The Contractor shall not divulge any information it acquires by virtue of its participating in the Program, including the contents of this Agreement, without the prior written consent of National Grid.

13.9 ENTIRE AGREEMENT

This Agreement constitutes the entire agreement between the Contractor and National Grid and, subject to paragraph 13.2 hereof; it may be amended or altered only by an instrument in writing signed by each of the parties hereto.

13.10 COMPLIANCE WITH LAW

The parties intend that this Agreement and all the obligations of the parties required by it shall comply in all respects with Federal, State and local laws, regulations, and orders, including, but not limited to, the current and future rules, regulations, and orders of the Rhode Island Public Utilities Commission (P.U.C.) and any provision of this Agreement to the contrary is null and void, and of no force and effect. If any aspect of this Agreement is finally determined by any government authority or court of competent jurisdiction to be in violation of law or illegal, then the parties agree to negotiate in good faith to amend the provisions of this Agreement and restructure the terms of this Agreement so as to place them each in substantially the same position as if such violation had not been found, failing which this Agreement shall be terminates of such date, subject to each party's continuing obligation to pay the other any amounts owing through to and as of the date of termination.

In witness whereof, the parties hereto have caused their respective authorized representatives to execute this agreement as of the date above first written.

NATIONAL GRID

BY _____

LISA DEGREGORY, MANAGER TRADE RELATIONS SOUTH
JEFFREY MARSHALL, MANAGER TRADE RELATIONS NORTH

CONTRACTOR NAME

BY: _____ SIGNATURE

NAME: _____ PRINT

LICENSE NUMBER: _____

DATE: _____

VPI Lead Distribution Areas (LDA) -- APPENDIX B

LDA 301

Cranston
E Providence
Garden City
Johnston
N Providence
Providence
Riverside
Rumford

LDA 302

Albion
Central Falls
Cumberland
Lincoln
North Smithfield
Pawtucket
Scituate
Smithfield
Woonsocket

LDA 303

Charlestown
Coventry
East Greenwich
Exeter
Hope Valley
Hopkington
Jamestown
Kenyon
Kingston
Kingstown
Narragansett
Peace Dale
Richmond
Saunderstown
South Kingstown
Wakefield
Warwick
West Greenwich
West Warwick
Westerly
Wyoming

LDA 304

Barrington
Bradford
Bristol
Newport
Middletown
Portsmouth
Tiverton
Warren

National Grid Lead Distribution Area Form (LDA) -- APPENDIX C

FIRM NAME: _____

PLEASE ATTACH YOUR BUSINESS CARD HERE
--

Please indicate lead distribution areas requested by checking boxes below.

LDA	(✓)	Fee per LDA	
301		\$675	
302		\$675	
303		\$675	
304		\$675	

TOTAL LDA'S
SELECTED:
TOTAL
FEES

AUTHORIZED SIGNATURE: _____

Please total the amount due and attach a check to this form made payable to: National Grid

Insurance Requirements -- APPENDIX D

Prior to performing any Services, the Contractor shall provide insurance as follows:

1. **Workers Compensation and Employers Liability**
 - (a) Statutory Workers Compensation (including occupational disease) in accordance with the laws of Commonwealth of Massachusetts.
 - (b) Employers Liability Insurance with a limit of at least \$500,000,
2. **Commercial General Liability** ("CGL") with a combined single limit for Bodily Injury, Personal Injury and Property Damage of a least \$1,000,000 per occurrence and aggregate. The limit may be provided through a combination of primary and umbrella/excess liability policies.

Coverage shall provide and encompass at least the following:

- a. Independent Contractors;
 - b. Blanket Written Contractual Liability .
 - c. Products Liability and Completed Operations, with the provision that coverage shall extend for a period of at least 12 (twelve) months from Project completion;
 - d. CGL coverage written on an occurrence form.
 - e. Endorsement naming National Grid (to the extent applicable) as Additional Insured.
3. **Commercial Automobile Liability** (including all owned, leased, hired and non-owned automobiles) with a combined single limit for Bodily Injury and Property Damage of at least \$300,000 per occurrence. The limit may be provided through a combination of primary and umbrella/excess liability policies.
 4. Umbrella and/or excess liability policies used to comply with CGL and/or Auto Liability limits shown above shall be warranted to be in excess of limits provided by primary CGL, Auto and Employers Liability.
 5. Certificates of Insurance must be submitted, approved, and available to National Grid prior to commencement of work, and provide for 30 days written notice prior to cancellation, non-renewal or material modification in any policy to:

National Grid
52 Second Avenue
Waltham MA 02451
Attn: Lisa DeGregory

6. All insurance carriers must be (i) licensed in Massachusetts; (ii) be acceptable to National Grid.

VPI INSTALLER PROFILE -- APPENDIX E

Business Name:						
Business Address:						
Mailing Address:						
Owner's Name:						
Owner's Address:						
Office Phone:						
Contact Person:						
Fax #:						
Alternate Phone: (required)						
Pager # / Name:						
Alternate Pager # / Name:						
Sales Reps Names:						
Foreign Languages:						
Name Licensed Plumber:						
License Number:						
Preferred Method of Contact for Appointments:	<input type="checkbox"/> PHONE <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL					
Types of gas installations for which you would like to receive leads: <input type="checkbox"/> Boilers <input type="checkbox"/> Conversion Burners <input type="checkbox"/> Furnaces <input type="checkbox"/> Water Heaters <input type="checkbox"/> Other Gas Appliances (specify)						
Are you available for evening / weekend emergency installations? <input type="checkbox"/> Yes <input type="checkbox"/> No						
Would you like to be on rotational contractor list for emergency installations? <input type="checkbox"/> Yes <input type="checkbox"/> No						
	Your firm's hours of Operation:	Hours to be Contacted with customer leads (phone, fax, or page):	Hours available to visit customers for installation Estimates:			
	Open	Close	Start	End	Start	End
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						
Sunday						
	<input type="checkbox"/> Takes all appointments	<input type="checkbox"/> Takes all appointments	<input type="checkbox"/> Takes all appointments			

Division Data Request DIV 8-24

Request:

Re: page 17, line 16 through page 18, line 13 of the direct testimony of witness Mongan, please:

- a. Identify each manufacture with whom “the Company has developed a bargaining relationship;”
- b. Indicate whether the reference to “the Company” in the context of the cited page and lines is intended to address National Grid’s Rhode Island gas distribution utility operations, Narragansett Electric Company, or National Grid’s broader corporate operations;
- c. Indicate whether National Grid, Narragansett, or any other affiliated entity makes a profit from the purchase and resale of the referenced equipment, and if so, please quantify the amount of such profit on a per unit basis.
- d. Verify through the provision of data and analyses that the total compensation that “the Company” receives through the combination of the sales price and compensation the Company will receive through rates for gas marketing program costs is less than or equal to the bulk purchase price of such equipment.
- e. Address the impacts on competitive retail suppliers of gas heating and cooling equipment of the Company’s purchase and resale of such equipment at prices below its bulk purchase cost.

Response:

- a. The manufacturers for the Rhode Island equipment discount program are American Standard Furnace and Burnham.
- b. The reference is to National Grid’s broader corporate operations.
- c. There is no profit realized by National Grid, Narragansett or any other affiliated entity.
- d. Listed below are the average prices paid within the ranges of efficiencies that are in the program, along with the customer contribution requirements. The equipment pricing does not generate net positive cash flow for the Company.

Standard Equipment

Average Cost = \$734

Upcharge = \$499

Premium Equipment (Midrange, 82-85% Efficiency)

Average Cost = \$1090

Upcharge = \$799

Ultra Equipment (High range, 92% efficiency)

Average Cost = \$1388

Upcharge = \$999

- e. The manufacturers have independent business relationships with distributors. The distributors are the point of retail for the contractors. The manufacturer pricing contracts with the Company are based on competitive pricing bids and the Company makes full payment of the contractual prices directly to the manufacturers.

Division Data Request DIV 8-25

Request:

Re: page 20, lines 3-14 of the direct testimony of witness Mongan, please indicate whether the referenced guarantee would be provided by National Grid's Rhode Island gas distribution utility operations or by some other affiliated entity.

Response:

The guarantee will be provided by National Grid's gas distribution utility operation, not by any other entity affiliated or otherwise. The cost of this guarantee is not included in the proposed program cost and will not be included in rates. The Company makes every reasonable effort to see that the customer is satisfied before invoking the guarantee. In fact, the Company actual experience is that the guarantee has had to be fulfilled (i.e., requiring the removal of the equipment) less than 10 times in the 10-year history of the Company's programs throughout New York and New England. During this time period, the Company has completed tens of thousands of gas conversions.

Division Data Request DIV 8-26

Request:

Re: page 20, line 21 through page 21, line 2 of the direct testimony of witness Mongan, please explain the extent to which the Company's shareholders would bear the risk of actual net margins (i.e., the forecasted revenue stream less the costs of the program) that fall below projected levels.

Response:

As discussed in Mr. Czekanski's testimony, the Company has included the sales revenue for the proposed incremental margins in the revenue requirement presented by Mr. Laflamme. This approach guarantees customers the rate benefit from the projected incremental revenue forecasted by the program.

Division Data Request DIV 8-27

Request:

Re: page 25, line 18 through page 26, line 10 of the direct testimony of witness Mongan, please:

- a. Provide the workpapers, data, analyses, and assumptions used in the calculation of the “net cost” of connecting new customers to the system or upgrading existing connections, including consideration contributions made by customers to the costs of new or expanded service connections;
- b. Provide the formula and data inputs that the witness has used to compute the IRRs reported in Attachment NG-SPM-1.

Response:

- a. Please see Attachment DIV-2-3, which was provided in Excel format.
- b. Please see Attachment DIV-8-27(b), which is a confidential IRR model that the Company has developed and that uses inputs from Attachment DIV-2-3.

Division Data Request DIV 8-28

Request:

Please provide the Company's best estimates of the number of new customers in each rate class that National Grid would expect to add to its system in Rhode Island in each of the next three years in the absence of the Gas Marketing Program that witness Mongan describes and the gas use per customer that will result in each of the next three years from new customers added to the system in each rate class.

Response:

Please see the base forecast provided on Workpapers PCC 3, page 7 found in Volume 5 at page 194.

Division Data Request DIV 8-29

Request:

Please provide the Company's best estimates of the number of existing customers in each rate class that National Grid would expect to expanded their gas use in each of the next three years in the absence of the Gas Marketing Program that witness Mongan describes and the gas use per customer that will result in each of the next three years from those customers in each rate class who will expand their gas use.

Response:

The Company did not separately forecast customers expected to expand their gas use in each of the next three years. However, the forecasted monthly use per customer in each rate class in each of the next three years can be found on Workpapers PCC 3, pages 1, 3 and 6. These workpapers were filed in Volume 5 at pages 188, 190 and 192.

Division Data Request DIV 8-30

Request:

Re: page 26, lines 17-20 of the direct testimony of witness Mongan. In the context of the Company's revenue decoupling proposal, please explain in detail the manner in which **the Company** is "**guaranteeing**" customers a rate benefit from volumes forecasted given that any shortfall in forecasted volumes would be offset by RPC related adjustments to rates through the DAC.

Response:

By including the projected sales revenues in the revenue requirement put forth in this proceeding, customers are receiving an immediate benefit from the Gas Marketing Program, because the projected sales revenues reduced the revenue deficiency and resulted in lower rates than would have been the case, in the absence of the marketing program.

The Company's revenue decoupling proposal does change the nature of the customer benefit. The benefit that is associated with the revenue requirement impact of the incremental marketing program revenues is not fixed at the levels that have been projected in this proceeding. Instead, the proposed decoupling mechanism will ensure that the customer benefit from the marketing program will reflect actual marketing program experience, which may be greater than or less than the Company's projections in this proceeding.

Division Data Request DIV 8-31

Request:

Re: page 27, lines 5-8 of the direct testimony of witness Mongan, please provide the data, analyses, studies and other documents upon which the Company relies to assess the success of its Gas Marketing Programs in New York, Massachusetts, and New Hampshire in terms of obtaining net growth benefits for customers.

Response:

As discussed in the Company's response to Data Request DIV-8-9, the level of sales has more than doubled on a sustained basis with the advent of the new marketing programs in Massachusetts and New Hampshire.

In addition to the significant increase in customers choosing natural gas, the contracting community has seen an impact on their business over the last several years, in many cases creating opportunities for expansion and certainly stability of work.

Division Data Request DIV 8-32

Request:

Re: Attachment NG-SPM-1, for each market and type of new or expanded gas use customer listed, please:

- a. Provide the Company's estimated average additional use per customer that would be gained from:
 - i. New customers added to the system
 - ii. Existing customers who expand their gas usage

- b. Provide the workpapers, data, analyses and assumptions relied upon to estimate average gas use per customer for:
 - i. New customers added to the system
 - ii. Existing customers who expand their gas usage

Response:

The requested information is contained in the spreadsheet provided in response to Data Request DIV-2-3.

Division Data Request DIV 8-33

Request:

Re: Attachment NG-SPM-1, for each market and type of new or expanded gas use customer listed for which the number of customers in column (A) is greater than the number of services in column (B), please provide comparable data for all columns in Attachment NG-SPM-1 showing separately the information for:

- a. Customers requiring new service connections;
- b. Customers requiring expanded service connections;
- c. Customers that expand gas use without requirements for either new or expanded gas service connections.

Response:

Please see Attachment DIV-8-27(a) for the requested information.

Division Data Request DIV 8-34

Request:

Re: Attachment NG-SPM-1, column (G), please provide the economic analysis that the witness relies upon to support his assessment that new non-heating residential customers would be willing to pay, and could economically justify, a “customer contribution” of \$1,500 to obtain service connection to the Company’s gas system.

Response:

Attachment NG-SPM-1 was formulated based on the IRR Model provided in Attachments DIV-8-27(a) and (b). The model was run using the marginal revenue for a non-heat residential customer (\$171) and the capital costs for a service (\$2,410). The resulting IRR was negative. Based on this calculation, the CIAC was set at \$1,500 to meet the hurdle rate of 12% non-heat residential customer conversions. In the Company’s experience, customers will pay this cost if their specific economic circumstances and balancing of costs and benefits warrants such payment. The intent of the Gas Marketing Program is to provide the customer with information to perform this evaluation and to facilitate conversions where it makes sense for the customer to do so.