APPENDIX J. MANUFACTURER IMPACT ANALYSIS INTERVIEW GUIDE AND GOVERNMENT REGULATORY IMPACT MODEL (GRIM)

TABLE OF CONTENTS

APPENDIX J. MANUFACTURER IMPACT ANALYSIS INTERVIEW GUIDE AND GOVERNMENT REGULATORY IMPACT MODEL

J.1 MANUFACTURER IMPACT ANALYSIS INTERVIEW GUIDE

Commercial Refrigeration Equipment Rulemaking
Manufacturer Impact Analysis Interview Guide

October 15, 2007

1 KEY ISSUES

The Department of Energy (DOE) is currently reviewing five efficiency levels for the commercial refrigeration equipment (CRE) rulemaking analyses. In responding to this questionnaire, please refer to the values described below.

Table 1.1 CRE Efficiency Levels

Equipment Class	Efficiency Metric	Baseline	Efficiency Level 1	Efficiency Level 2	Efficiency Level 3	Efficiency Level 4
VOP.RC.M	CDEC/TDA kWh/day/ft^2	1.08	0.90	0.75	0.70	0.64
VOP.RC.L	CDEC/TDA kWh/day/ft^2	2.93	2.61	2.47	2.46	2.39
SVO.RC.M	CDEC/TDA kWh/day/ft^2	1.05	1.00	0.90	0.80	0.74
HZO.RC.M	CDEC/TDA kWh/day/ft^2	0.16	0.16	0.14	0.11	0.10
HZO.RC.L	CDEC/TDA kWh/day/ft^2	0.83	0.75	0.70	0.65	0.62
VCT.RC.M	CDEC/TDA kWh/day/ft^2	0.54	0.42	0.38	0.24	0.19
VCT.RC.L	CDEC/TDA kWh/day/ft^2	1.06	0.90	0.75	0.65	0.55
SOC.RC.M	CDEC/TDA kWh/day/ft^2	0.95	0.76	0.74	0.71	0.60
VOP.SC.M	TDEC/TDA kWh/day/ft^2	2.55	2.23	2.07	1.84	1.65
SVO.SC.M	TDEC/TDA kWh/day/ft^2	2.24	1.99	1.87	1.62	1.54
HZO.SC.M	TDEC/TDA kWh/day/ft^2	0.78	0.61	0.56	0.54	0.48
HZO.SC.L	TDEC/TDA kWh/day/ft^2	2.05	1.80	1.52	1.33	1.32
VCT.SC.I	TDEC/TDA kWh/day/ft^2	1.58	1.24	0.77	0.69	0.63
VCS.SC.I	TDEC/V kWh/day/ft^3	0.27	0.19	0.18	0.17	0.17
HCT.SC.I	TDEC/TDA kWh/day/ft^2	1.63	1.28	0.73	0.61	0.57

1.1 What are the key issues for your company regarding energy conservation standards for CRE and this rulemaking?

1.2 For the issues identified, how significant are they for each efficiency level?

1.3 How can we most effectively incorporate these issues in the Manufacturer Impact Analysis (MIA)?

2 COMPANY OVERVIEW AND ORGANIZATIONAL CHARACTERISTICS

DOE is interested in understanding manufacturer impact at the plant or profit center level directly pertinent to CRE production. However, the context within which the plant operates and the details of plant production and costs are not readily available from the published literature. Therefore, DOE invites you to provide these details confidentially in your own words to the extent possible and practical. Understanding the organizational setting around the CRE industry profit center will help DOE understand the probable future of the CRE manufacturing activity with and without energy conservation standards.

2.1 Do you have a parent company, and/or any subsidiaries relevant to the CRE industry?

2.2 Do you manufacture any equipment other than CRE? If so, what other equipment do you manufacture?

2.3 What percentage of your total manufacturing corresponds to CRE?

2.4 Where are your production facilities located, and what type of equipment is manufactured at each location? Could you provide figures for your company's manufacturing at each location by equipment type (CRE or other), size, and efficiency (i.e., provide the equipment mix for each location).

2.5 At a particular facility, would potential CRE redesigns be difficult to implement? If so, would your company modify the existing facility or develop a new facility?

2.6 What are your employment levels at each of these facilities?

2.7 What are your company's total CRE production volumes (i.e., units per year, linear feet per year) for the past 5 years? What are the production volumes of your five highest volume equipment classes?

2.8 What are your equipment lines, niches, and relative strengths in the CRE market?

2.9 The Small Business Association (SBA) denotes a small business in the CRE industry as having less than 750 employees. By this definition, is your company considered a small business?

2.10 Are there any niche manufacturers, small businesses, and/or component manufacturers (i.e., compressors) for which the adoption of new standards would have a severe impact? If so, would manufacturers of this equipment have different incremental impacts from implemented energy efficiency standards than from the rest of the industry?

3 FINANCIAL PARAMETERS

Navigant Consulting, Inc. (NCI) has developed a "strawman" model of the CRE industry financial performance called the Government Regulatory Impact Model (GRIM), using publicly available data on CRE manufacturers. This section attempts to understand how your company's financial situation differs from our industry aggregate picture.

3.1 Please compare your financial parameters to the GRIM parameters tabulated below.

Table 3.1 Financial Parameters for CRE Manufacturers

GRIM Input	Definition	CRE GRIM Estimated Value	Your Actual (if significantly different from our estimate)
Income Tax Rate	Corporate (average) effective income tax paid (percentage of earnings before taxes, EBT)	22.1%	
Discount Rate	Weighted average cost of capital (inflation-adjusted weighted average of corporate cost of debt and return on equity)	11.5%	
Working Capital	Current assets less current liabilities (percentage of revenues)	8.6%	
SG&A	Selling, general, and administrative expenses (percentage of revenues)	16.5%	
R&D	Research and development expenses (percentage of revenues)	2.3%	
Depreciation	Amortization of fixed assets (percentage of revenues)	2.6%	
Capital Expenditures	Outlay of cash to acquire or improve capital assets (percentage of revenues, not including acquisition or sale of business units)	2.0%	

3.2 How would you expect new energy conservation standards impact your company's financial parameters?

4 PRODUCTION COST BREAKDOWN

DOE estimated the full production costs of various CRE units of different efficiencies for all equipment classes. With the combined data, DOE calculated the industry average percentage of each cost in the full production cost.

4.1 Please compare your full production cost percentages to the estimated GRIM full production cost percentages tabulated below. Are the different percentages of each cost representative of your company or the CRE industry? Please explain any differences.

Table 4.1 Breakdown by Percentage of Full Production Costs for Baseline CRE

Components of Full Production Costs	Estimated % of Full Production Cost	Your Actual (if different from our estimate)
Materials	86.16%	
Labor	9.61%	
Overhead	2.83%	
Depreciation	1.39%	

5 SHIPMENT PROJECTIONS AND MARKET SHARES

A new energy conservation standard can change overall shipments by changing equipment attributes, marketing approaches, equipment availability, and price. The GRIM bases revenue projections on shipment projections obtained from the National Energy Savings Spreadsheet (NES) prepared by the Pacific Northwest National Laboratory (PNNL). The NES includes shipment forecasts for the baseline (absent new standards) and new standards at each efficiency level being analyzed.

5.1 Please compare DOE's projections of industry-wide shipments for CRE with your company's projections of industry-wide shipments?

Table 5.1 2012 Industry-Wide Shipment Projections for CRE (Number of Units)

Equipment Class	Baseline Shipments	Comments or Your Company's Projection
VOP.RC.M	42300	
VOP.RC.L	-	
SVO.RC.M	32300	
HZO.RC.M	5000	
HZO.RC.L	15600	
VCT.RC.M	3000	
VCT.RC.L	42000	
SOC.RC.M	10125	
VOP.SC.M	7000	
SVO.SC.M	10750	
HZO.SC.M	1000	
HZO.SC.L	2000	
VCT.SC.I	2000	
VCS.SC.I	600	
HCT.SC.I	10000	

5.2 Based on the shipment data DOE received from ARI, the VOP.RC.L equipment class was listed as having 0 shipments. Manufacturers recommended that this equipment class be included in DOE's analysis because they do, in fact, ship units that would fall into this equipment class. Are there any additional equipment classes, not listed in Table 5.1, for which DOE may have inaccurate shipment data?

5.3 DOE assumed that total industry shipments for 2012 would not be affected by increasing standard levels (i.e., total industry shipments remain constant at the various analyzed standard levels in comparison to the base case). Could you provide your company's estimates and/or any qualitative information on expected changes in total industry shipments at the different analyzed efficiency levels?

Table 5.2 Changes in Remote Condensing CRE Shipments versus Baseline in 2012

Efficiency Level	VOP.RC.M		VOP.RC.L		SVO.RC.M		HZO.RC.M	
	CDEC/TDA kWh/day/ft^2	% Change	CDEC/TDA kWh/day/ft^2	% Change	CDEC/TDA kWh/day/ft^2	% Change	CDEC/TDA kWh/day/ft^2	% Change
Efficiency Level 1	0.90		2.61		1.00		0.16	
Efficiency Level 2	0.75		2.47		0.90		0.14	
Efficiency Level 3	0.70		2.46		0.80		0.11	
Efficiency Level 4	0.64		2.39		0.74		0.10	
	HZO.RC.L		VCT.RC.M		VCT.RC.L		SOC.RC.M	
	CDEC/TDA kWh/day/ft^2	% Change	CDEC/TDA kWh/day/ft^2	% Change	CDEC/TDA kWh/day/ft^2	% Change	CDEC/TDA kWh/day/ft^2	% Change
Efficiency Level 1	0.75		0.42		0.90		0.76	
Efficiency Level 2	0.70		0.38		0.75		0.74	
Efficiency Level 3	0.65		0.24		0.65		0.71	
Efficiency Level 4	0.62		0.19		0.55		0.60	

Table 5.3 Changes in Open Self Contained CRE Shipments versus Baseline in 2012

Efficiency Level	VOP.SC.M		SVO.SC.M		HZO.SC.M		HZO.SC.L	
	TDEC/TDA kWh/day/ft^2	% Change	TDEC/TDA kWh/day/ft^2	% Change	TDEC/TDA kWh/day/ft^2	% Change	TDEC/TDA kWh/day/ft^2	% Change
Efficiency Level 1	2.23		1.99		0.61		1.80	
Efficiency Level 2	2.07		1.87		0.56		1.52	
Efficiency Level 3	1.84		1.62		0.54		1.33	
Efficiency Level 4	1.65		1.54		0.48		1.32	

Table 5.4 Changes in Ice-Cream Freezer Shipments versus Baseline in 2012

Efficiency Level	VCT.SC.I		VCS.SC.I		HCT.SC.I	
	TDEC/TDA kWh/day/ft^2	% Change	TDEC/V kWh/day/ft^3	% Change	TDEC/TDA kWh/day/ft^2	% Change
Efficiency Level 1	1.24		0.19		1.28	
Efficiency Level 2	0.77		0.18		0.73	
Efficiency Level 3	0.69		0.17		0.61	
Efficiency Level 4	0.63		0.17		0.57	

5.4 What is your company's approximate market share of the CRE industry?

5.5 Would you expect your market share to change once higher energy conservation standards become effective?

6 EQUIPMENT MIX

Current differences in equipment mix (distribution of equipment sales by efficiency level) among manufacturers can lead to different reactions to and impacts from new energy conservation standards.

6.1 If your company offers multiple equipment lines with different efficiency levels, how does your mix of CRE sales by equipment efficiency compare to our projected 2012 Industry Average distribution for the baseline case as shown in Table 6.1 – Table 6.15? If your company does not offer multiple equipment lines with different efficiency levels, are the projected distributions representative of the CRE industry? A new energy conservation standard affects the equipment mix by eliminating the sale of equipment below the minimum efficiency level. The NES forecasts the distribution of CRE sales by efficiency level after standards. Are the NES forecasts described in the tables below for the year 2012 consistent with your own expectations for the industry?

Table 6.1 Percentage of Total Shipments by Efficiency Level for VOP.RC.M in 2012

Proposed Standard Level (CDEC/TDA - kWh/day/ft^2)	**1.08**	**0.90**	**0.75**	**0.70**	**0.64**
Baseline (1.08)	23.2%	43.0%	19.3%	7.9%	6.6%
Level 1 (0.90)		66.2	19.3%	7.9%	6.6%
Level 2 (0.75)			85.5%	7.9%	6.6%
Level 3 (0.70)				93.4%	6.6%
Level 4 (0.64)					100%

Table 6.2 Percentage of Total Shipments by Efficiency Level for VOP.RC.L in 2012

Proposed Standard Level (CDEC/TDA - kWh/day/ft^2)	**2.93**	**2.61**	**2.47**	**2.46**	**2.39**
Baseline (2.93)	17.6%	36.9%	16.9%	16.5%	12.1%
Level 1 (2.61)		54.5%	16.9%	16.5%	12.1%
Level 2 (2.47)			71.4%	16.5%	12.1%
Level 3 (2.46)				87.9%	12.1%
Level 4 (2.39)					100%

Table 6.3 Percentage of Total Shipments by Efficiency Level for SVO.RC.M in 2012

Proposed Standard Level (CDEC/TDA - kWh/day/ft^2)	**1.05**	**1.00**	**0.90**	**0.80**	**0.74**
Baseline (1.05)	20.3%	17.0%	29.4%	23.7%	9.6%
Level 1 (1.00)		37.3%	29.4%	23.7%	9.6%
Level 2 (0.90)			66.7%	23.7%	9.6%
Level 3 (0.80)				90.4%	9.6%
Level 4 (0.74)					100%

Table 6.4 Percentage of Total Shipments by Efficiency Level for HZO.RC.M in 2012

Proposed Standard Level (CDEC/TDA - kWh/day/ft^2)	**0.16**	**0.14**	**0.11**	**0.10**
Baseline (0.16)	24.8%	25.4%	25.2%	24.6%
Level 1 (0.14)		50.2%	25.2%	24.6%
Level 2 (0.11)			75.4%	24.6%
Level 3 (0.10)				100%

Table 6.5 Percentage of Total Shipments by Efficiency Level for HZO.RC.L in 2012

Proposed Standard Level (CDEC/TDA - kWh/day/ft^2)	0.83	0.75	0.70	0.65	0.62
Baseline (0.83)	18.3%	35.2%	16.2%	15.4%	14.9%
Level 1 (0.75)		53.5%	16.2%	15.4%	14.9%
Level 2 (0.70)			69.7%	15.4%	14.9%
Level 3 (0.65)				85.1%	14.9%
Level 4 (0.62)					100%

Table 6.6 Percentage of Total Shipments by Efficiency Level for VCT.RC.M in 2012

Proposed Standard Level (CDEC/TDA - kWh/day/ft^2)	0.54	0.42	0.38	0.24	0.19
Baseline (0.54)	15.7%	35.4%	34.7%	9.1%	5.1%
Level 1 (0.42)		51.1%	34.7%	9.1%	5.1%
Level 2 (0.38)			85.8%	9.1%	5.1%
Level 3 (0.24)				94.9%	5.1%
Level 4 (0.19)					100%

Table 6.7 Percentage of Total Shipments by Efficiency Level for VCT.RC.L in 2012

Proposed Standard Level (CDEC/TDA - kWh/day/ft^2)	1.06	0.90	0.75	0.65	0.55
Baseline (1.06)	17.6%	30.7%	24.8%	19.6%	7.3%
Level 1 (0.90)		48.3%	24.8%	19.6%	7.3%
Level 2 (0.75)			73.2%	19.6%	7.3%
Level 3 (0.65)				92.7%	7.3%
Level 4 (0.55)					100%

Table 6.8 Percentage of Total Shipments by Efficiency Level for SOC.RC.M in 2012

Proposed Standard Level (CDEC/TDA - kWh/day/ft^2)	0.95	0.76	0.74	0.71	0.60
Baseline (0.95)	16.5%	43.4%	16.4%	15.9%	16.7%
Level 1 (0.76)		51.0%	16.4%	15.9%	16.7%
Level 2 (0.74)			67.4%	15.9%	16.7%
Level 3 (0.71)				83.3%	16.7%
Level 4 (0.60)					100%

Table 6.9 Percentage of Total Shipments by Efficiency Level for VOP.SC.M in 2012

Proposed Standard Level (TDEC/TDA - kWh/day/ft^2)	2.55	2.23	2.07	1.84	1.65
Baseline (2.55)	14.5%	30.1%	28.7%	21.6%	5.1%
Level 1 (2.23)		44.6%	28.7%	21.6%	5.1%
Level 2 (2.07)			73.3%	21.6%	5.1%
Level 3 (1.84)				94.9%	5.1%
Level 4 (1.65)					100%

Table 6.10 Percentage of Total Shipments by Efficiency Level for SVO.SC.M in 2012

Proposed Standard Level (TDEC/TDA - kWh/day/ft^2)	2.24	1.99	1.87	1.62	1.54
Baseline (2.24)	13.9%	28.4%	27.2%	22.9%	7.6%
Level 1 (1.99)		42.2%	27.2%	22.9%	7.6%
Level 2 (1.87)			69.5%	22.9%	7.6%
Level 3 (1.62)				92.4%	7.6%
Level 4 (1.54)					100%

Table 6.11 Percentage of Total Shipments by Efficiency Level for HZO.SC.M in 2012

Proposed Standard Level (TDEC/TDA - kWh/day/ft^2)	0.78	0.61	0.56	0.54	0.48
Baseline (0.78)	12.7%	38.8%	25.6%	12.3%	10.7%
Level 1 (0.61)		51.5%	25.6%	12.3%	10.7%
Level 2 (0.56)			77.0%	12.3%	10.7%
Level 3 (0.54)				89.3%	10.7%
Level 4 (0.48)					100%

Table 6.12 Percentage of Total Shipments by Efficiency Level for HZO.SC.L in 2012

Proposed Standard Level (TDEC/TDA - kWh/day/ft^2)	2.05	1.80	1.52	1.33	1.32
Baseline (2.05)	12.1%	25.0%	39.9%	11.6%	11.3%
Level 1 (1.80)		37.1%	39.9%	11.6%	11.3%
Level 2 (1.52)			77.1%	11.6%	11.3%
Level 3 (1.33)				88.7%	11.3%
Level 4 (1.32)					100%

Table 6.13 Percentage of Total Shipments by Efficiency Level for VCT.SC.I in 2012

Proposed Standard Level (TDEC/TDA - kWh/day/ft^2)	1.58	1.24	0.77	0.69	0.63
Baseline (1.58)	12.5%	29,0%	41.4%	10.1%	6.8%
Level 1 (1.24)		41.6%	41.4%	10.1%	6.8%
Level 2 (0.77)			83.0%	10.1%	6.8%
Level 3 (0.69)				93.2%	6.8%
Level 4 (0.63)					100%

Table 6.14 Percentage of Total Shipments by Efficiency Level for VCS.SC.I in 2012

Proposed Standard Level (TDEC/V - kWh/day/ft^3)	0.27	0.19	0.18	0.17	0.17
Baseline (0.27)	11.2%	51.2%	13.3%	13.0%	11.3%
Level 1 (0.19)		62.4%	13.3%	13.0%	11.3%
Level 2 (0.18)			75.7%	13.0%	11.3%
Level 3 (0.17)				88.7%	11.3%
Level 4 (0.17)					100%

Table 6.15 Percentage of Total Shipments by Efficiency Level for HCT.SC.I in 2012

Proposed Standard Level (TDEC/TDA - kWh/day/ft^2)	1.63	1.28	0.73	0.61	0.57
Baseline (1.63)	17.2%	36.0%	16.0%	15.5%	15.2%
Level 1 (1.28)		53.3%	16.0%	15.5%	15.2%
Level 2 (0.73)			69.3%	15.5%	15.2%
Level 3 (0.61)				84.8%	15.2%
Level 4 (0.57					100%

6.2 Do you expect the equipment mix to change over time absent any new energy conservation standards? If so, please explain how it will change.

7 CONVERSION COSTS

An increase in energy conservation standards may cause your company to incur one-time capital and equipment conversion costs. DOE calls these conversion costs because they are the costs of changing your business to comply with new energy conservation standards.

7.1 What level of conversion costs do you anticipate incurring under the different efficiency levels? What portion of your capital conversion expenditures do you expect to go towards replacing existing assets, which would become obsolete under a new energy conservation standard? Refer to the tables below to provide your company's estimates. Please provide additional qualitative information to help DOE understand the nature of your investments.

Table 7.1 Remote Condensing CRE Conversion Costs

Efficiency Level (EL)	VOP.RC.M			VOP.RC.L		
	Capital Conv. Exp.[a]	Product Conv. Exp.[b]	Stranded Assets	Capital Conv. Exp.	Product Conv. Exp.	Stranded Assets
Baseline						
EL 1						
EL 2						
EL 3						
EL 4						
	SVO.RC.M			**HZO.RC.M**		
Baseline						
EL 1						
EL 2						
EL 3						
EL 4						
	HZO.RC.L			**VCT.RC.M**		
Baseline						
EL 1						
EL 2						
EL 3						
EL 4						
	VCT.RC.L			**SOC.RC.M**		
Baseline						
EL 1						
EL 2						
EL 3						
EL 4						

[a] Capital Conversion Expenditures - One-time investments in plant, property, and equipment (PPE) necessitated by an energy conservation standard. These may be completely incremental to existing PPE or they could involve replacement of existing PPE.

[b] Product Conversion Expenditures - One-time expenses in research, product development, testing, and marketing necessitated by an appliance energy conservation standard.

Table 7.2 Open Self Contained CRE Conversion Costs

Efficiency Level (EL)	VOP.SC.M			SVO.SC.M		
	Capital Conv. Exp.	Product Conv. Exp.	Stranded Assets	Capital Conv. Exp.	Product Conv. Exp.	Stranded Assets
Baseline						
EL 1						
EL 2						
EL 3						
EL 4						
	HZO.SC.M			HZO.SC.L		
Baseline						
EL 1						
EL 2						
EL 3						
EL 4						

Table 7.3 Ice-Cream Freezer Conversion Costs

Efficiency Level (EL)	VCT.SC.I			VCS.SC.I		
	Capital Conv. Exp.	Product Conv. Exp.	Stranded Assets	Capital Conv. Exp.	Product Conv. Exp.	Stranded Assets
Baseline						
EL 1						
EL 2						
EL 3						
EL 4						
	HCT.SC.I					
Baseline						
EL 1						
EL 2						
EL 3						
EL 4						

7.2 What is your depreciation period for the capital expenditures (building, equipment, and tooling)?

8 MARKUPS AND PROFITABILITY

One of the primary objectives of the MIA is to assess the impact of efficiency levels on industry profitability. In this section, DOE would like your assistance understanding how the efficiency levels would impact your company's markups and profitability.

8.1 Do profit levels vary by equipment class? Do profit levels vary by efficiency level? Please explain why or why not?

8.2 The equipment price markup DOE calculated for the Engineering Analysis was 1.39. The equipment price markup DOE calculated for the Notice of Proposed Rulemaking (NOPR) Analysis was 1.44. Do these numbers seem accurate, or are they too high or low?

8.3 Do you expect changes in your estimated profitability following the new energy conservation standard? If so, please explain why.

9 CUMULATIVE REGULATORY BURDEN

Cumulative regulatory burden refers to the burden that industry faces from overlapping effects of new or revised DOE standards, voluntary standards, and/or other regulatory actions affecting the same equipment or industry.

9.1 Are there other recent or impending regulations, excluding the refrigerant phase-out, that CRE manufacturers face (from DOE or otherwise)? What level of expense are you expecting to incur as a result of these regulations?

9.2 Under what circumstances would you be able to coordinate any expenditures related to these other regulations thereby lessening the cumulative burden?

10 EXPORTS / FOREIGN COMPETITION / OUTSOURCING

Disparity between domestic and foreign energy conservation standards could impact exports or imports. Labor content and material changes, resulting from energy conservation standards, may impact sourcing decisions.

10.1 What percentage of your company's CRE sales are domestic? Absent standards, are production facilities being relocated to foreign countries? Would new energy conservation standards impact your domestic vs. foreign manufacturing decision?

10.2 If applicable, to what foreign countries or regions do you export your equipment? What percentage of sales can be attributed to each?

10.3 Would a new standard be expected to affect your export sales? What would the resulting impact be, if any, on your manufacturing operations and profitability?

10.4 Are your foreign exports affected by energy efficiency standards in other countries?

10.5 What percentage of the U.S. market for CRE has been captured by foreign competition? Would standards have an impact on foreign competition?

10.6 What is your outlook for the future operation of your company and the CRE industry with regard to exports?

11 DIRECT EMPLOYMENT IMPACT ASSESSMENT

The impact of new energy conservation standards on employment is an important consideration in the rulemaking process. This section of the interview guide seeks to explore current trends in CRE production employment and solicit manufacturer views on how domestic employment patterns might be affected by new energy conservation standards.

11.1 Would your domestic employment levels be expected to change significantly under new energy conservation standards? If so, please explain how they would change.

11.2 Would the workforce skills necessary under new energy conservation standards require extensive retraining or replacement of employees?

11.3 Would mandating higher efficiency levels result in larger sized equipment to compensate for larger, more efficient components? Have you found direct labor costs to be proportional to material costs?

12 CONSOLIDATION

New energy conservation standards can alter the competitive dynamics of the market. This can include prompting companies to enter or exit the market, or to merge. DOE and the Department of Justice are both interested in any potential reduction in competition that would result from a new energy conservation standard.

12.1 Please comment on industry consolidation and related trends over the last 5 years.

12.2 In the absence of new standards, do you expect any further industry consolidation? Please describe your expectations.

12.3 How would new standards affect your ability to compete?

13 BASELINE PRODUCTS AND DESIGN OPTIONS

13.1 What lighting configurations are generally incorporated into baseline open cases (vertical, semivertical, and horizontal)? Canopy, front ledge, shelf, other?

13.2 Should electric defrost be included in baseline open cases (vertical, semivertical, and horizontal)?

13.3 Is insulation thickness increase a feasible design option? What equipment classes that your company makes would this be viable for? Would there be a significant issues with a 1/4" or 1/8” insulation thickness increase?

13.4 DOE intends to develop offset factors for all standard equations to account for the disproportionate energy use of small cases. These factors will be based on “end effects” such as conduction through end panels and fixed lighting level in door cases such that an equitable standard level in terms of CDEC or TDEC (equating to a similar set of component changes to the baseline model) is defined across different length equipment of the same basic design. Is this approach reasonable?

13.5 Does your company have data that would help DOE develop factors to extend standards to low-shipment equipment classes using the methodology described in section 5.8 of the CRE TSD?

J.2 GOVERNMENT REGULATORY IMPACT MODEL

J.2.1 Introduction and Purpose

The purpose of the Government Regulatory Impact Model (GRIM) is to help quantify the impacts of energy conservation standards and other regulations on manufacturers. The basic mode of analysis is to estimate the change in value of the industry or manufacturers(s) following a regulation or a series of regulations. The model structure also allows an analysis of multiple equipment types with regulations taking effect over a period of time, and of multiple regulations on the same equipment.

Industry net present value is defined, for the purpose of this analysis, as the discounted sum of industry free cash flows plus a discounted terminal value. The model calculates the actual cash flows by year and then determines the present value of those cash flows both without an energy conservation standard (i.e., the base case) and under different trial standard levels (TSLs).

Output from the model consists of summary financial metrics, graphs of major variables, and, when appropriate, access to the complete cash flow calculation.

J.2.2 Model Description

The basic structure of the GRIM is a standard annual cash flow analysis that uses manufacturer selling prices, manufacturing costs, a shipments forecast, and financial parameters as inputs and accepts a set of regulatory conditions as changes in costs and investments. The cash flow analysis is separated into two major blocks: income and cash flow. The income calculation determines net operating profit after taxes. The cash flow calculation converts net operating profit after taxes into an annual cash flow by including investment and non-cash items. Below are definitions of listed items on the printout of the output sheet (see Section I.3).

(1) Unit Sales: Total annual shipments for the industry were obtained from the National Energy Savings Spreadsheet. The distribution of shipments by efficiency level was modified based on feedback from manufacturers regarding the ability to sell baseline and premium products depending on the standard level proposed;

(2) Revenues: Annual revenues - computed by multiplying equipment unit price at each efficiency level by the appropriate manufacturer markup;

(3) Labor: The portion of cost of goods sold (COGS) that includes direct labor, commissions, dismissal pay, bonuses, vacation, sick leave, social security contributions, fringe, and assembly labor up-time;

(4) Material: The portion of COGS that includes materials;

(5) Overhead: The portion of COGS that includes indirect labor, indirect material, energy use, maintenance, depreciation, property taxes, and insurance related to assets. While included in overhead, the depreciation is shown as a separate line item;

(6) Depreciation: Annual depreciation computed as a percentage of COGS. While included in overhead, the depreciation is shown as a separate line item;

(7) Stranded Assets: In the year the standard becomes effective, a one time write-off of stranded assets is accounted for;

(8) Standard SG&A: Selling, general, and administrative costs are computed as a percentage of ***Revenues (2)***;

(9) R&D: GRIM separately accounts for ordinary research and development (R&D) as a percentage of ***Revenues (2)***;

(10) Equipment Conversion Expense: Equipment conversion expenses are one-time investments in research, development, testing, and marketing focused on making product designs comply with the new efficiency standard. GRIM allocates these costs over the period between the standard's announcement and effective dates;

(11) Earnings Before Interest and Taxes (EBIT): Includes profits before deductions for interest paid and taxes;

(12) EBIT as a Percentage of Sales: GRIM calculates EBIT as a percentage of sales to compare with the industry's average reported in financial statements;

(13) Taxes: Taxes on ***EBIT (11)*** are calculated by multiplying the tax rate contained in Major Assumptions by ***EBIT (11)***.

(14) Net Operating Profits After Taxes (NOPAT): Computed by subtracting ***Cost of Goods Sold ((3) to (6))***, ***SG&A (8)***, ***R&D (9)***, ***Equipment Conversion Expense (10)***, and ***Taxes (13)*** from ***Revenues (2)***.

(15) NOPAT repeated: NOPAT is repeated in the Statement of Cash Flows;

(16) Depreciation repeated: Depreciation is added back in the Statement of Cash Flows including stranded assets because both are non-cash expenses;

(17) Change in Working Capital: Change in cash tied up in accounts receivable, inventory, and other cash investments necessary to support operations is calculated by multiplying working capital (as a percentage of revenues) by the change in annual revenues.

(18) Cash Flow From Operations: Calculated by taking ***NOPAT (15)***, adding back non-cash items such as a ***Depreciation (16)***, and subtracting out ***Change in Working Capital (17)***;

(19) Ordinary Capital Expenditures: Ordinary investments in property, plant, and equipment to maintain and replace existing production assets, computed as a percentage of ***Revenues (2)***;

(20) Conversion Capital Expenditures: Conversion capital expenditures are one-time investments in property, plant, and equipment to adapt or change existing production facilities so that new equipment designs can be fabricated and assembled under the new regulation;

(21) Capital Investment: Total investments in property, plant, and equipment are computed by adding ***Ordinary Capital Expenditures (19)*** and ***Conversion Capital Expenditures (20)***;

(22) Free Cash Flow: Annual cash flow from operations and investments; computed by subtracting ***Capital Investment (21)*** from ***Cash Flow from Operations (18)***;

(23) Terminal Value: Estimate of the continuing value of the industry after 2042. Computed by growing the Free Cash Flow in year 2042 at a constant rate in perpetuity;

(24) Present Value Factor: Factor used to calculate an estimate of the present value of an amount to be received in the future;

(25) Discounted Cash Flow: Free Cash Flows (22) multiplied by the ***Present Value Factor (24)***. For 2042 the discounted cash flow includes the discounted ***Terminal Value (23)***; and

(26) Industry Value thru 2042: The sum of ***Discounted Cash Flows (25)***.

J.2.3 Detailed Cash Flow Example

Standard Case Income and Cash Flow Statements

This tab computes key parameters from an income statement based on unit sales, revenues and COGS, and initial financial inputs (parameters as a % of revenue). It also computes an INPV based on a discounted cash flow model.

STANDARD CASE SCENARIO			2006	Base Year 2007	Ann. Year 2008	2009	2010	2011	Standard Year 2012	2013	2014
Industry Income Statement											
Unit Sales			0.142	0.144	0.147	0.152	0.159	0.165	0.168	0.166	0.164
Revenues			$ 725	$ 733	$ 748	$ 775	$ 810	$ 840	$ 858	$ 848	$ 838
Cost of Sales											
	Labor	8.9%	$ 64	$ 65	$ 66	$ 69	$ 72	$ 74	$ 76	$ 75	$ 74
	Material	53.2%	$ 386	$ 390	$ 398	$ 412	$ 431	$ 447	$ 456	$ 451	$ 446
	Overhead	12.7%	$ 92	$ 93	$ 95	$ 98	$ 103	$ 106	$ 109	$ 107	$ 106
	Depreciation	1.1%	$ 8	$ 8	$ 8	$ 8	$ 9	$ 9	$ 9	$ 9	$ 9
	Stranded Assets		$ -	$ -	$ -	$ -	$ -	$ -	$ 0.50	$ -	$ -
Selling, General and Administrative											
	Standard SG&A		$ 98	$ 99	$ 101	$ 105	$ 109	$ 113	$ 116	$ 114	$ 113
	R&D	1.9%	$ 14	$ 14	$ 14	$ 15	$ 15	$ 16	$ 16	$ 16	$ 16
	Equipment Conversion Expense		$ -	$ -	$ 0	$ 0	$ 0	$ 0	$ 0	$ -	$ -
Earnings Before Interest and Taxes (EBIT)		8.9%	$ 64	$ 65	$ 66	$ 69	$ 72	$ 74	$ 75	$ 75	$ 74
EBIT/Revenues			8.9%	8.9%	8.9%	8.8%	8.8%	8.8%	8.8%	8.9%	8.9%
Taxes			$ 14	$ 14	$ 15	$ 15	$ 16	$ 16	$ 17	$ 17	$ 16
Net Operating Profit after Taxes (NOPAT)			$ 50	$ 51	$ 52	$ 53	$ 56	$ 58	$ 59	$ 58	$ 58
Cash Flow Statement											
	NOPAT		$ 50	$ 51	$ 52	$ 53	$ 56	$ 58	$ 59	$ 58	$ 58
	Depreciation		$ 8	$ 8	$ 8	$ 8	$ 9	$ 9	$ 10	$ 9	$ 9
	Change in Working Capital		$ -	$ (1)	$ (1)	$ (2)	$ (3)	$ (3)	$ (2)	$ 1	$ 1
Cash Flows from Operations			$ 58	$ 58	$ 58	$ 59	$ 61	$ 64	$ 67	$ 68	$ 67
	Ordinary Capital Expenditure	1.2%	$ (9)	$ (9)	$ (9)	$ (9)	$ (10)	$ (10)	$ (10)	$ (10)	$ (10)
	Conversion Capital Expenditures		$ -	$ -	$ -	$ (0)	$ (0)	$ (0)	$ -	$ -	$ -
Capital Investments			$ (9)	$ (9)	$ (9)	$ (9)	$ (10)	$ (10)	$ (10)	$ (10)	$ (10)
Free Cash Flow			$ 49	$ 49	$ 49	$ 50	$ 51	$ 54	$ 56	$ 58	$ 57
Terminal Value			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Present Value Factor			1.115	1.000	0.897	0.804	0.721	0.647	0.580	0.520	0.467
Discounted Cash Flow			$ 54.59	$ 48.83	$ 44.09	$ 40.08	$ 36.95	$ 34.66	$ 32.75	$ 30.22	$ 26.79
Industry Value thru	2042	$ 540.4									