

Section 5: Template

5.1 Overview

There are two spreadsheet templates which have been developed for the estimation of impacts associated with alternative scenarios. These are: (1) Energy Efficiency Program Template and (2) Renewable Energy Template.

5.2 Data Entry and Analysis Steps -- Energy Efficiency

The Energy Efficiency Program Template has five basic steps, as shown below. These are accessed through separate sheets on the three-dimensional spreadsheet. Note that, on each sheet, only the shaded items are to be filled in. All other numbers and words are automatically calculated or reprinted.

(Sheet 1)-- SPENDING

Input Step 1 -- Enter the Annual Spending on energy efficiency spending stream, in constant 1995 dollars.

(Sheet 2) -- DSM PROGRAM

Input Step 2 -- Enter the mix of program spending by economic sector and end use technology. Note that this mix is set to be the same for all years. The current Iowa mix is shown here as the default values. Note that all of the figures in the Step 2 entry box together must add up to 100%.

Input Step 3 -- Enter the incentive share of total costs, for purchase and installation of each type of program measure, for each type of end use technology and each type of economic sector. The estimated current Iowa values based on valuable data for a subset of all programs, indicate that rebates cover roughly 40% of the total cost for most programs; the remaining 60% is paid by the program participants.

Input Step 4 -- Enter the average ratio of participant energy savings to annual program cost, for each type of end use technology and each type of economic sector. The estimated current Iowa values, based on available data for a subset of all programs indicates that lifetime benefits generally run at 1.5 to 3 times total lifetime program costs.

Input Step 5 -- Other Data. The "Net Benefit Lifetime" is the number of years that the energy savings will continue to accrue from any installed energy-saving measures (set at 10 yrs for this analysis). The "Benefit Loss Rate" is the proportion of accumulated energy savings which is lost annually due to failure, removal or degradation of function over time for the installed measures (set at 2% annually for this analysis). The "Cost Recovery Period" is the number of years over which the program cost is to be recovered, through higher rates paid

by customers. (currently 4 years, for Iowa utility programs). The cost for each sector -- residential, commercial and industrial -- is allocated separately to that economic sector. The "Rate Impact" is to be input by the user. In addition, the box marked "cross check" shows a calculated value of rate impact estimated by the template model based on the assumption of allocating actual costs over the specified cost recovery period. (This is only a rough estimate, and does not fully account for factors such as a return on DSM investments, shared savings rewards, generation loss recovery, interest cost, etc.

(Sheet 3) -- DEFAULT ASSUMPTIONS

Optional Input Step 6 -- Profile of DSM Program Spending. This table indicates the breakdown of costs for each type of program, separately by end use and custom sector. The defaults values come from the Survey of Iowa Utilities.

The remainder of this spreadsheet are intermediate calculations of costs and savings for the residential, commercial, industrial and agricultural sectors, as well as for utilities.

(Sheet 4) -- RESULTS

The results include estimated changes in Gross State Product (labeled as Gross Regional Product for the State of Iowa), Net Disposable Personal Income and Employment, year from 1995 to 2015. Employment impacts are also broken down by Standard Industrial Classification group.

5.3 Data Entry and Analysis Steps - Renewable Power

The Renewable Energy Template has three basic input steps, as shown below.

(Sheet 1) -- CAPITAL COSTS

Input step 1 -- Enter the capital costs, timing and total payment cost (including financing) associated with the purchase of equipment and construction of facilities.

(Sheet 2) -- OPERATING & MAINTENANCE COSTS

Input step 2 -- Enter the factors in annual spending on fuels, in constant 1995 dollars.

Input step 3 -- Enter the factors in annual spending on facility operating and maintenance, in constant 1995 dollars.

(Sheet 3) -- DEFAULT ASSUMPTIONS

Optional Input Step 4: The data on in-state vs. out-of-state flows of spending on renewable power fuels, materials and facilities is input here.

(Sheet 4) -- RESULTS

The results include estimated changes in Gross State Product (labeled as “Gross Regional Product” for the state), Net Disposable Personal Income and Employment, year from 1995 to 2015. Employment impacts are also broken down by Standard Industrial Classification group.

5.3 Sample

A sample of the spreadsheets, showing input and output fields, is shown on the pages which follow:

IOWA STATE IMPACT OF ENERGY POLICIES

SCENARIO 1. Full DSM Mix -- \$80m/yr for One Yr.

Input Step 1. Energy Spending by Year (millions of 1995 \$)

| | DSM Spending | | Total |
|------|--------------|-------|-------|
| | Utility | State | |
| 1995 | 72 | 8 | \$80 |
| 1996 | 0 | 0 | \$0 |
| 1997 | 0 | 0 | \$0 |
| 1998 | 0 | 0 | \$0 |
| 1999 | 0 | 0 | \$0 |
| 2000 | 0 | 0 | \$0 |
| 2001 | 0 | 0 | \$0 |
| 2002 | 0 | 0 | \$0 |
| 2003 | 0 | 0 | \$0 |
| 2004 | 0 | 0 | \$0 |
| 2005 | 0 | 0 | \$0 |
| 2006 | 0 | 0 | \$0 |
| 2007 | 0 | 0 | \$0 |
| 2008 | 0 | 0 | \$0 |
| 2009 | 0 | 0 | \$0 |
| 2010 | 0 | 0 | \$0 |
| 2011 | 0 | 0 | \$0 |
| 2012 | 0 | 0 | \$0 |
| 2013 | 0 | 0 | \$0 |
| 2014 | 0 | 0 | \$0 |
| 2015 | 0 | 0 | \$0 |

IOWA STATE IMPACT OF ENERGY POLICIES

SCENARIO 1. Full DSM Mix -- \$80m/yr for One Yr.

Input Step 2. Program Spending by Type & Sector (% of Total DSM Spending)

| | Resid Sector | Comm Sector | Industrial Sector | Agric Sector | Instit./Govt Sector | Total |
|--------------|-----------------|----------------|----------------------|-----------------|------------------------|-------|
| Bldg Shell | 3 | 0 | 0 | 0 | 2 | 5 % |
| Lighting | 12 | 4 | 2 | 1 | 4 | 23 % |
| Hot Water | 14 | 0 | 0 | 0 | 0 | 14 % |
| HVAC | 30 | 11 | 2 | 1 | 4 | 48 % |
| Appliance | 0 | 0 | 0 | 0 | 0 | 0 % |
| Refrigeratio | 0 | 1 | 0 | 0 | 0 | 1 % |
| Motors | 0 | 0 | 4 | 0 | 0 | 4 % |
| Process | 0 | 1 | 1 | 0 | 0 | 2 % |
| New Const | 3 | 0 | 0 | 0 | 0 | 3 % |
| Total | 62 | 17 | 9 | 2 | 10 | 100 % |

Input Step 3. Incentive Share of Total (Incentive + Copayment by Partic)

| | Resid Sector | Comm Sector | Industrial Sector | Agric Sector | Instit./Govt Sector |
|--------------|-----------------|----------------|----------------------|-----------------|------------------------|
| Bldg Shell | 42 | 40 | 40 | 40 | 40 |
| Lighting | 45 | 36 | 36 | 36 | 36 |
| Hot Water | 45 | 36 | 36 | 36 | 36 |
| HVAC | 45 | 47 | 47 | 47 | 47 |
| Appliance | 45 | 38 | 38 | 38 | 38 |
| Refrigeratio | 45 | 28 | 28 | 28 | 28 |
| Motors | 38 | 38 | 38 | 38 | 38 |
| Process | 28 | 28 | 28 | 28 | 28 |
| New Const | 45 | 30 | 30 | 30 | 30 |
| Wght Avg. | 45 | 42 | 38 | 41 | 41 |

Input Step 4. Ratio of Energy Savings to Program Cost

| | Resid | Comm | Industrial | Agric | Instit./Govt | Wght Avg |
|------------|-------|------|------------|-------|--------------|----------|
| Bldg Shell | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| Lighting | 1.8 | 4.6 | 4.6 | 4.6 | 4.6 | 3.1 |
| Hot Water | 1.9 | 2.5 | 2.5 | 2.5 | 2.5 | 1.9 |
| HVAC | 1.7 | 2.4 | 2.4 | 2.4 | 2.4 | 2.0 |
| Appliance | 1.7 | 3.2 | 3.2 | 3.2 | 3.2 | 0.0 |
| Refrig | 1.7 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| Motors | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 |
| Process | 4.9 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 |
| New Constr | 1.8 | 2.4 | 2.4 | 2.4 | 2.4 | 1.8 |
| Wght Avg. | 1.8 | 3.2 | 4.4 | 3.5 | 3.2 | 2.4 |

Input Step 5. Other Data

| | | |
|----------------------------|-------|-----------------------------|
| Net Benefit Lifetime ----- | 10 | years |
| Discount Rate ----- | 5 | percent annually |
| Cost Recovery Period-> | 4 | years |
| Persistence Loss Rate-> | 2 | percent annually |
| Current Cost of Energy-> | 9 | cents per kWh (equivalent) |
| Given Rate Impact -----> | 0.105 | cents per kWh (residential) |
| | 0.085 | cents per kWh (commercial) |
| | 0.085 | cents per kWh (industrial) |

Cross-check

| |
|-------------|
| Calc. c/kWh |
| Rate Impact |
| If Expensed |
| for yr 1995 |
| 0.211 |
| 0.141 |
| 0.102 |

IOWA STATE IMPACT OF ENERGY POLICIES

SCENARIO: 1. Full DSM Mix -- \$80m/yr for One Yr.

Input Step 6. Given Profile of Program Spending (percent in each row total)

Admin Marketing M & E Incentives Total (sb 100)

Residential

| | | | | | |
|-------------|----|----|----|----|-------|
| Bldg Shell | 8 | 3 | 8 | 81 | 100 % |
| Lighting | 13 | 33 | 5 | 49 | 100 % |
| Hot Water | 12 | 25 | 6 | 57 | 100 % |
| HVAC | 10 | 12 | 6 | 72 | 100 % |
| Appliance | 12 | 20 | 6 | 62 | 100 % |
| Refrig | 12 | 20 | 6 | 62 | 100 % |
| Motors | | | | | 0 % |
| Process | | | | | 0 % |
| New Constr. | 23 | 6 | 18 | 53 | 100 % |

Business (Comm., Ind., Agric., Instit/Govt)

| | | | | | |
|-------------|----|----|----|----|-------|
| Bldg Shell | 28 | 7 | 15 | 50 | 100 % |
| Lighting | 15 | 6 | 12 | 67 | 100 % |
| Hot Water | 18 | 7 | 15 | 60 | 100 % |
| HVAC | 21 | 8 | 18 | 53 | 100 % |
| Appliance | | | | | 0 % |
| Refrig | 16 | 10 | 12 | 62 | 100 % |
| Motors | 43 | 9 | 17 | 31 | 100 % |
| Process | 24 | 7 | 23 | 46 | 100 % |
| New Constr. | 28 | 7 | 15 | 50 | 100 % |

1. Full DSM Mix -- \$80m/yr for One Yr.

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|
| GRP | 32 | -10 | -10 | -10 | 12 | 13 | 12 | 13 | 13 | 14 | 0 |
| Disposable Income | 19 | 0 | 0 | 0 | 20 | 21 | 20 | 21 | 21 | 21 | 0 |
| Total Employment | 498 | -60 | -62 | -68 | 272 | 286 | 280 | 287 | 294 | 301 | 0 |

Employment by Sector

[illegible][illegible]

Employment by Sector

[illegible]

APPENDIX A

INVENTORY OF IOWA DSM PROGRAMS

By Hagler Bailly Consulting

For the Iowa Dept. of Natural Resources

December, 1995

Inventory of Iowa DSM Programs

| TYPE | PROGRAM | End Uses | # Res | # Comm | # Ind | # Ag/ Other | KWh Savings | Therm Savings | Funding - 1994 |
|---------------------------------|------------------------------|----------|--------|--------|-------|-------------|-------------|---------------|----------------|
| IES INDUSTRIES | | | | | | | | | |
| | ACTIVE AUDIT | AEHLW | 3,809 | 0 | 0 | | 2,694,000 | 673,000 | 1,537,000 |
| | EQUIPMENT REBATE | AHLW | 7,000 | 0 | 0 | 0 | 1,970,000 | 1,056,000 | 2,651,000 |
| | LOW INCOME WEATHERIZATION | AEHLW | 402 | 0 | 0 | 0 | 608,000 | 90,000 | 713,000 |
| | A/C CYCLING | U | 3,334 | 0 | 0 | 0 | 2,500 | 0 | 1,302,000 |
| | NEW CONSTRUCTION | AEH | 337 | 0 | 0 | 0 | 122,000 | 6,000 | 248,000 |
| | TIME OF DAY PRICING | U | 420 | 0 | 0 | 0 | 0 | 0 | 600,000 |
| | C/I EQUIPMENT REBATE | AHM | 0 | 2,060 | 516 | 0 | 40,040,000 | 100,000 | 3,496,000 |
| | INDUSTRIAL PROCESS | P | 0 | 6 | 17 | 0 | 4,500,000 | 0 | 717,000 |
| | TIME OF DAY PRICING | U | 0 | 1,340 | 340 | 0 | 0 | 0 | 595,000 |
| | INTERRUPTIBLE PRICING | U | 0 | 2 | 3 | 0 | 0 | 0 | 121,000 |
| | TRCE PLANTING | | 0 | 0 | 0 | 0 | 0 | 0 | 395,000 |
| | | | 15,302 | 3,408 | 876 | 0 | 49,936,500 | 1,925,000 | 12,375,000 |
| INTERSTATE POWER COMPANY | | | | | | | | | |
| | SECURITY LIGHT CHANGEOUT. | L | 98 | 99 | 0 | 0 | 68,000 | 0 | 16,316 |
| | STREET LIGHTING, THE | L | 0 | 0 | 0 | 270 | 127,000 | 0 | 517 |
| | INDUSTRIAL/ AGRICULTURAL | O | 4 | 249 | 1 | | 3,293,000 | | 900,172 |
| | HIGH EFFICIENCY AC & ASHP. | A | 1,516 | 114 | 0 | 1,624 | 90,000 | 0 | 524,009 |
| | WATER HEATER WRAP/ | LW | 1,310 | 0 | 0 | 0 | 112,000 | 0 | 107,353 |
| | C/I EFFIC LIGHTING/ SWITCH & | L | 0 | 520 | 0 | 0 | 10,868,000 | 0 | 1,079,586 |
| | GROUND COUPLED HEAT PUMP. | AH | 20 | 7 | 1 | 0 | (235,000) | 0 | 216,459 |
| | LOW INCOME WEATHERIZATION. | E | 49 | 0 | 0 | 0 | 0 | 0 | 51,019 |
| | TIME OF USE PRICING. | U | 0 | 27 | 7 | 3 | 0 | 0 | 0 |
| | HIGH EFFIC GAS FURNACE | H | 845 | 89 | 0 | 0 | | 918,999 | 629,206 |
| | INTERRUPTIBLE PRICING | U | 0 | 0 | 27 | 0 | 0 | 0 | 18,806 |
| | LOW INCOME ENERGY | LW | 95 | 0 | 0 | 5 | 23,000 | | 23,687 |

Inventory of Iowa DSM Programs

| TYPE | PROGRAM | End Uses | # Res | # Comm | # Ind | # Agl/ Other | KWh Savings | Therm Savings | Funding - 1994 |
|--------------------------------------|---------|----------|--------|--------|-------|-----------------|-------------|---------------|----------------|
| A/C AND WH CYCLING (DLC) | | AW | 23,46 | | | | | | 3,349,167 |
| BULBS COMPONENT (DLC) | | L | 6,474 | | | | 589,000 | | |
| GRANT | | | | 64 | | | 5,633,000 | 61,184 | 0 |
| | | | 33,874 | 1,169 | 36 | 1,902 | 20,568,000 | 980,183 | 6,916,297 |
| IOWA DNR | | | | | | | | | |
| ENERGY BANK PROGRAM -State | | AWHLO | 0 | 0 | 0 | 390 | 1,609,000 | 0 | 8,924,000 |
| IOWA-ILLINOIS GAS & ELECTRIC COMPANY | | | | | | | | | |
| RESIDENTIAL WEATHERIZATION | | EWL | 1,058 | | | | 671,019 | | 1,647,968 |
| RESIDENTIAL HIGH EFF. EQUIP | | AHW | 1,832 | | | | 634,001 | | 2,544,610 |
| RESIDENTIAL LOW INCOME | | ELW | 79 | | | | 40,285 | | 294,056 |
| RESIDENTIAL | | AHW | 441 | | | | 152,374 | | 869,737 |
| NON-RES. SHOPPING LIST | | AHLMR | | 270 | | | 4,798,803 | | 915,956 |
| NON-RES. CUSTOMIZED | | AHLMRP | | 126 | | | 502,772 | | 583,139 |
| NON-RES. INDUSTRIAL | | P | | | 18 | | 2,030,785 | | 297,976 |
| NON-RES. NEW BUILDING | | AEHLRW | | | | | 39,286 | | 191,154 |
| GAS: RES. WEATHERIZATION | | EW | 4,231 | | | | | 422,268 | |
| GAS: RES. HIGH EFF. EQUIP | | HW | 7,329 | | | | | 713,827 | |
| GAS: RES. LOW INCOME | | ER | 317 | | | | | 40,145 | |
| GAS: RES. NEW CONSTRUCTION | | HW | 1,762 | | | | | 198,788 | |
| GAS: NON-RES. SHOPPING LIST | | EHMW | | 67 | | | | 58,422 | |
| GAS: NON-RES. CUSTOMIZED | | EHWP | | 31 | | | | 57,017 | |
| GAS: NON-RES. INDUSTRIAL | | PW | | | 5 | | | 9,443 | |

Inventory of Iowa DSM Programs

| TYPE | PROGRAM | End Uses | # Res | # Comm | # Ind | # Ag/ Other | KWh Savings | Therm Savings | Funding - 1994 |
|----------------------------|--------------------------------|----------|--------|--------|-------|-------------|-------------|---------------|----------------|
| GAS: NON-RES. NEW BUILDING | | | 17,049 | 494 | 23 | 0 | 8,869,325 | 1,499,910 | 7,344,596 |
| EHW | | | | | | | | | |
| MIDWEST GAS | | | | | | | | | |
| | EFFICIENT EQUIPMENT | | 2,852 | | | | | 293,865 | 1,062,978 |
| | EFFICIENT CONSTRUCTION | | | 4 | | | | 28,790 | 139,987 |
| | BUILDING SYSTEMS DIRECT | | | 209 | | | | 3,187,768 | 852,651 |
| | BUILDING SYSTEMS CUSTOM | | | 47 | | | | 428,321 | 473,282 |
| | CUSTOM PROCESS | | | | 9 | | | 1,115,376 | 193,824 |
| | INTERRUPTIBLE RATE | | | 3 | | | | 0 | 2,065,518 |
| | TREES FOR TOMORROW | | | | | | | 0 | 165,863 |
| | MISCELLANEOUS | | | | | | | 0 | 86,016 |
| | HOUSE CALL PROGRAM | | 2,902 | | | | | 361,554 | 600,249 |
| | LOW INCOME WEATHERIZATION | | 654 | | | | | 335,004 | 248,932 |
| | ROCK VALLEY PROJECT | | | | | | | 0 | 63,021 |
| | ASSESSMENTS | | | | | | | 0 | 328,428 |
| | | | 6,408 | 263 | 9 | 0 | 0 | 5,750,678 | 6,360,779 |
| MIDWEST POWER | | | | | | | | | |
| | APPLIANCE EFFICIENCY - | AHW | 9,981 | 0 | 0 | 0 | 8,050,279 | | 2,269,665 |
| | EFFICIENT ENERGY MOTORS - | M | 0 | 0 | 25 | 0 | 293,984 | | 106,281 |
| | TOU COST RECOVERY - | U | 4,000 | 0 | 0 | 0 | 1,195,493 | | 2,213,450 |
| | DLC OF AIR CONDITIONERS - | A | 6,500 | 0 | 0 | 0 | 63 | | 1,596,060 |
| | SMALL C/I SERVICES - Small | AHRWL | 0 | 0 | 0 | 0 | 12,156 | | 22,250 |
| | COMMERCIAL COOLING - C/I | A | 0 | 340 | 81 | 0 | 1,018,707 | | 384,902 |
| | TREE PLANTING - Shade trees to | E | 0 | 0 | 0 | 0 | 0 | | 176,860 |
| | COMMERCIAL LIGHTING - | L | 0 | 1,492 | 0 | 0 | 18,436,691 | | 2,057,285 |

Inventory of Iowa DSM Programs

| TYPE | PROGRAM | End Uses | # Res | # Comm | # Ind | # Ag/ Other | KWh Savings | Therm Savings | Funding - 1994 |
|------|-------------------------------|----------|-------|--------|-------|-------------|-------------|---------------|----------------|
| I | HVAC OPTIONS - Promotion of | AEHRW | 0 | 22 | 5 | 0 | 661,960 | | 273,220 |
| I | INTERRUPTIBLE/CURTAILMENT - | U | 0 | 6 | 24 | 0 | 418,020 | | 4,649,510 |
| I | GUARANTEED SAVINGS - | LWAMEH | 0 | 28 | 0 | 0 | 988,401 | | 188,413 |
| I | EFFICIENT COMM. CONSTR - | EALWHR | 0 | 7 | 0 | 0 | 0 | | 75,252 |
| I | CUSTOM PROCESS - Promotion of | P | 0 | 0 | 0 | 0 | 207,574 | | 44,490 |
| I | LOW INCOME | AEHLRW | | | | | 413,773 | | 269,120 |
| I | COGENERATION ASSIST. | U | | | | | 0 | | 38,830 |
| I | STREETLIGHT REPLACEMENT | L | | | | | 7,177,506 | | 866,004 |
| I | ASSESSMENTS - COSTS | U | | | | | 0 | | 30,780 |
| I | ASSESSMENTS - IA NRG & | U | | | | | 0 | | 318,990 |
| | RESIDENTIAL AIR CONDITIONER | | 2,650 | | | | 0 | | 912,207 |
| | RESIDENTIAL APPLIANCE | | 1,330 | | | | 748,594 | | 370,031 |
| | ENERGY FITNESS PROGRAM | | 17,43 | | | | 2,669,756 | | 332,241 |
| | LOW INCOME WEATHERIZATION | | 1,233 | | | | 3,099,074 | | 231,242 |
| | COMMERCIAL LIGHTING | | | 324 | | | 16,433,750 | | 754,265 |
| | INTERRUPTIBLE/CURTAILMENT | | | | 4 | | 0 | | 542,145 |
| | ENERGY EFFICIENT MOTORS | | | 34 | | | 1,054,907 | | 103,082 |
| | COMMERCIAL CHILLERS | | | 8 | | | 431,741 | | 131,326 |
| | COMMERCIAL AIR | | | 188 | | | 533,904 | | 108,512 |
| | COMMERCIAL HVAC OPTIONS | | | 16 | | | 407,160 | | 133,641 |
| | CUSTOM PROCESS | | | | 3 | | 5,700,000 | | 130,724 |
| | STREETLIGHT REPLACEMENT | | | | | 1,808 | 3,527,152 | | 445,839 |
| | TREES FOR TOMORROW | | | | | | 0 | | 184,731 |
| | MISCELLANEOUS | | | | | | 0 | | 90,564 |
| | ROCK VALLEY PROJECT | | | | | | 0 | | 61,024 |

Inventory of Iowa DSM Programs

| TYPE | PROGRAM | End Uses | # Res | # Comm | # Ind | # Ag/ Other | KWh Savings | Therm Savings | Funding - 1994 | | | | |
|---------------------|----------------------------|----------|-------|--------|-------|-------------|-------------|---------------|----------------|-------|------------|-----------|------------|
| ASSESSMENTS | | | | | | | 0 | | 276,640 | | | | |
| | | | | | | | 43,133 | 2,465 | 142 | 1,808 | 73,480,645 | 0 | 20,389,579 |
| MUNICIPAL UTILITIES | | | | | | | | | | | | | |
| | COMMERCIAL HEAT PUMP | H | | | | | | | | | | 3,250 | |
| | DENSIFIED REFUSE DERIVED | O | | | | | 0 | | | | | 69,526 | |
| | DUAL FUEL | H | | | | | 876,000 | | | | | 49,000 | |
| | EFFICIENT LIGHTING PROGRAM | L | | | | | 1,311,476 | | | | | 69,438 | |
| | HEAT PUMP REBATES & HEAT | H | | | | | 1,800 | | | | | 5,800 | |
| | INDUSTRIAL GENERAL | P | | | | | | | | | | 14,000 | |
| | INDUSTRIAL CF LIGHTING | L | | | | | 60,000 | | | | | 78,000 | |
| | INDUSTRIAL AUDITS | E | | | | | 570,000 | | | | | 880 | |
| | INFRARED | E | | | | | 118,699 | | | | | 12,654 | |
| | INSULATION | E | | | | | 10,000 | | | | | 51,962 | |
| | LOAD CONTROL | AHW | 6,799 | 461 | 0 | 0 | 32,052 | | | | | 334,642 | |
| | LOW FLOW | W | | | | | 9,000 | | | | | 8,876 | |
| | LOW INCOME HOUSING | E | | | | | 665,000 | | | | | 134,724 | |
| | RESIDENTIAL CENTRAL AIR | A | | | | | 2,115 | | | | | 500 | |
| | RESIDENTIAL ELEC. WATER | W | | | | | 19,850 | | | | | 541 | |
| | RESIDENTIAL ENERGY AUDIT | E | 105 | 7 | 0 | 0 | 126,000 | | | | | 33,241 | |
| | RESIDENTIAL GAS WATER | W | | | | | 0 | | | | | 0 | |
| | RESIDENTIAL HEAT PUMP | H | | | | | 22,866 | | | | | 1,275 | |
| | RESIDENTIAL LOW FLOW | W | | | | | 12,000 | | | | | 5,200 | |
| | RESIDENTIAL ROOM AIR | A | | | | | 1,600 | | | | | 200 | |
| | RESIDENTIAL WATER HEATER | W | | | | | 119,000 | | | | | 18,000 | |
| | STREET LIGHT RETROFIT | L | | | | | 17,623,505 | | | | | 1,154,127 | |
| | TIME OF USE | U | | | | | 275,000 | | | | | 25,495 | |

Inventory of Iowa DSM Programs

| TYPE | PROGRAM | End Uses | # Res | # Comm | # Ind | # Ag/ Other | KWh Savings | Therm Savings | Funding - 1994 |
|------------------------------------|----------------------------|----------|-------|--------|-------|----------------|-------------|---------------|----------------|
| OTHER | | | | | | | | | |
| | OTHER APPLIANCE REBATES | HMP | | | | | 5,986,554 | | 1,619,979 |
| | | A | | | | | 95,496 | | 16,576 |
| | SYSTEM UPGRADES | H | | | | | 12,348,916 | | 3,146,830 |
| | OTHER MUNICIPAL PROGRAMS | AEHLMPRU | | | | | 3,206,256 | | 1,499,089 |
| | | | 6,904 | 468 | 0 | 0 | 43,502,985 | 0 | 8,353,785 |
| PEOPLE'S NATURAL GAS | | | | | | | | | |
| I | DOMESTIC HOT WATER | W | 3,331 | | | | | 319,776 | 500,994 |
| I | CLOCK THERMOSTAT PROGRAM | HW | 1,567 | | | | | 235,050 | 167,888 |
| I | WEATHERIZATION ASSISTANCE | E | 192 | | | | | 50,688 | 548,367 |
| I | CLARKE COLLEGE | O | | 1 | | | | | 0 |
| I | COMMERCIAL FIRM AUDIT | HWM | | 28 | | | | 42,588 | 94,859 |
| I | INTERRUPTIBLE AUDITS | U | | | 5 | | | | 47,444 |
| I | ENERGY CENTER | O | | | | | | | 100,500 |
| I | TREE PLANTING | E | | | | | | | 77,972 |
| I | HEATING SYSTEM REBATE | H | | | | | | 17,716 | 264,561 |
| | | | 5,090 | 29 | 5 | 0 | 0 | 665,818 | 1,802,585 |
| RURAL ELECTRIC COOPERATIVES | | | | | | | | | |
| | DUAL-FUEL SPACE HEATING | H | 6,281 | | | | | | 373,787 |
| | LOAD CONTROL SPACE | H | 3,604 | | | | 0 | | 138,912 |
| | DUAL-FUEL/ELEC. THERMAL | H | 208 | | | | | | 100,301 |
| | WATER HEATER LOAD CONTROL | W | 15,61 | | | | | | 355,207 |
| | CROP DRYING AND IRRIGATION | OW | | | | 915 | 0 | | 13,144 |
| | INDUSTRIAL INTERRUPTIBLE | U | | | 8 | | 0 | | 3,248 |
| | GROUND SOURCE HEAT PUMP | AH | 1,144 | | | | 11,898,024 | | 350,383 |
| | AIR SOURCE HEAT PUMP | AH | 1,038 | | | | 3,709,878 | | 262,290 |

Inventory of Iowa DSM Programs

| TYPE | PROGRAM | End Uses | # Res | # Comm | # Ind | # Ag/ Other | KWh Savings | Therm Savings | Funding - 1994 |
|-----------------------------------|----------|----------|---------------|------------|----------|----------------|-------------------|---------------|------------------|
| AIR QUALITY REBATE PROGRAM | | | | | | | | | |
| | AH | | 105 | | | | 80,995 | | 7,359 |
| HIGH EFFICIENCY AIR | A | | 2,956 | | | | 3,045,908 | | 70,384 |
| HIGH EFFICIENCY WATER | W | | 18,36 | | | | 8,338,608 | | 716,105 |
| HIGH EFFICIENCY ELECTRIC | H | | 1,105 | | | | 2,466,250 | | 42,164 |
| TRIPLE "E" REBATE | | | 26 | | | | 260,760 | | 24,000 |
| APPLIANCES PROGRAM | ALO | | 5,456 | | | | 0 | | 126,269 |
| HIGH EFFICIENCY SECURITY | L | | | | | 1,291 | 4,302,759 | | 467,038 |
| HIGH EFFICIENCY COMMERCIAL | L | | | 386 | | | 192,266 | | 18,164 |
| MODEL HOUSING FINANCE | E | | 52 | | | | 0 | | 62,100 |
| HEATING & COOLING | AH | | | | | 3,859 | 0 | | 64,813 |
| ENERGY AUDIT SERVICES | EAHLW | | 8,673 | | | | 0 | | 133,596 |
| DOMESTIC WATER HEATERS | W | | 1,198 | | | | 0 | | 34,361 |
| ERC AND OTHER LOANS | U | | 1,047 | | | | 0 | | 23,601 |
| TIME OF USE COMMERCIAL | U | | | 104 | | | | | 38,108 |
| TIME-OF-USE RESIDENTIAL | | | 3 | | | | 0 | | 265 |
| | | | 67,173 | 490 | 8 | 6,065 | 34,295,448 | 0 | 3,425,599 |
| UNITED CITIES GAS | | | | | | | | | |
| RESIDENTIAL | | | | | | | | | |
| | W | | 250 | | | | | 25,440 | 86,750 |
| LOW INCOME | | | | | | | | | |
| | W | | 10 | | | | 250 | 0 | 9,077 |
| | | | 260 | 0 | 0 | 500 | 0 | 25,440 | 95,827 |
| WAVERLY LIGHT & POWER | | | | | | | | | |
| ALL PROGRAMS | | | | | | | | | |
| | AEHLMOPR | | | | | | 2,209,136 | | 158,000 |
| | | | 0 | 0 | 0 | 0 | 2,209,136 | 0 | 158,000 |

APPENDIX B

SURVEY OF IOWA MANUFACTURERS, DISTRIBUTORS & SERVICE PROVIDERS OF ELECTRIC, GAS & ENERGY SAVINGS PRODUCTS

By Hagler Bailly Consulting

For the Iowa Dept. of Natural Resources

December, 1995

SURVEY OF IOWA MANUFACTURERS, DISTRIBUTORS & SERVICE PROVIDERS OF ELECTRIC, GAS & ENERGY SAVING PRODUCTS

1. What types of products do you manufacture, distribute or service from this location?
(CIRCLE ALL THAT APPLY)

| | Manufacture | Wholesale Distribute | Design/Install Repair Service |
|--------------------------------|-------------|-------------------------|----------------------------------|
| Lamps/Ballasts | 1 | 2 | 3 |
| Stoves/Ovens | 1 | 2 | 3 |
| Refrigerators/ Freezers | 1 | 2 | 3 |
| Clothes Washers/Dryers | 1 | 2 | 3 |
| Space Heating Equipment | 1 | 2 | 3 |
| Humidifiers | 1 | 2 | 3 |
| Air Conditioning /Heat Pumps | 1 | 2 | 3 |
| Hot Water Heaters | 1 | 2 | 3 |
| Motors or Generators | 1 | 2 | 3 |
| Transformers | 1 | 2 | 3 |
| Controls | 1 | 2 | 3 |
| Insulation Materials | 1 | 2 | 3 |
| Windows and Doors | 1 | 2 | 3 |
| Other Specialized Elec. Equip. | 1 | 2 | 3 |
| (SPECIFY _____) | | | |
| Other Energy Saving Materials | 1 | 2 | 3 |
| (SPECIFY _____) | | | |

2. What portion of the products that you manufacture, distribute or service at this location are high efficiency (i.e., energy-saving) as opposed to standard efficiency products? (FILL IN PERCENTAGE OR CIRCLE IF NOT APPLICABLE)

| | Percentage that is High Efficiency | Circle if not applicable |
|--------------------------------|---------------------------------------|-----------------------------|
| Lamps/Ballasts | _____ % | 1 |
| Stoves/Ovens | _____ % | 1 |
| Refrigerators/ Freezers | _____ % | 1 |
| Clothes Washers/Dryers | _____ % | 1 |
| Space Heating Equipment | _____ % | 1 |
| Humidifiers | _____ % | 1 |
| Air Conditioning /Heat Pumps | _____ % | 1 |
| Hot Water Heaters | _____ % | 1 |
| Motors or Generators | _____ % | 1 |
| Transformers | _____ % | 1 |
| Controls | _____ % | 1 |
| Insulation Materials | _____ % | 1 |
| Windows and Doors | _____ % | 1 |
| Other Specialized Elec. Equip. | _____ % | 1 |
| (SPECIFY _____) | | |
| Other Energy Saving Materials | _____ % | 1 |
| (SPECIFY _____) | | |

3. What percentage of the revenue of this facility is attributable to customers in the state of Iowa?
(FILL IN APPROXIMATE PERCENTAGE)

_____ % (IF YOU CANNOT ESTIMATE PERCENTAGE, CIRCLE ONE NUMBER)

- 1 Nearly All
- 2 More Than Half
- 3 Roughly Half
- 4 Less Than Half
- 5 Relatively Little
- 6 Don't Know

4. What portion of your Iowa business revenue deals with high efficiency (i.e., energy-saving) products?
(FILL IN PERCENTAGE OR CIRCLE IF NOT APPLICABLE)

_____ % 1 Don't Know

What portion of your non-Iowa business revenue deals with high efficiency (i.e., energy-saving) products? (FILL IN PERCENTAGE OR CIRCLE IF NOT APPLICABLE)

_____ % 1 Don't Know

5. What percentage of your sales are in the following group?
(FILL IN PERCENTAGE OR CIRCLE IF UNKNOWN)

| | | |
|----------------------------------|---------|--------------|
| Sales to retail consumers | _____ % | 1 Don't Know |
| Sales to contractors/ installers | _____ % | 1 Don't Know |
| Sales to wholesale distributors | _____ % | 1 Don't Know |
| Sales to other resellers | _____ % | 1 Don't Know |
| Sales to others (TO WHOM: _____) | _____ % | 1 Don't Know |

6. What percentage of the materials and equipment you purchase come from suppliers located in Iowa?
(FILL IN APPROXIMATE PERCENTAGE)

_____ % (IF YOU CANNOT ESTIMATE PERCENTAGE, CIRCLE ONE NUMBER)

- 1 Nearly All
- 2 More Than Half
- 3 Roughly Half
- 4 Less Than Half
- 5 Relatively Little
- 6 Don't Know

7. Have you heard of rebate, grant and subsidy programs which are being offered by Iowa utilities and state agencies to encourage purchases of energy-saving appliances, equipment and materials?
(CIRCLE ONE NUMBER)

- | | |
|---|------------------------|
| 1 Yes - definitely know about them and understand how they work | } (SKIP TO QUESTION 9) |
| 2 Yes - have heard that they exist but don't know much about them | |
| 3 No - have not heard specifically about them | |
| 4 Not Sure - might have heard something about them | |

8. Has knowledge of these energy programs affected your firm's products and services?
(CIRCLE ALL NUMBERS THAT APPLY)

- 1 We are now supplying special energy-saving products & services intended for these programs.
- 2 We have normally been supplying some energy-saving products & services which may also be used for these programs.
- 3 We have been considering offering some energy-savings products & services in the future.
- 4 We have not changed our product and service offerings because of these programs.

9. Are there any changes which you would like to see the Iowa utilities and/or state agencies make in their policies and programs regarding energy efficiency and conservation? (CIRCLE ONE NUMBER)

1 No

2 Yes _____>

What are they?

(FILL IN BLANK) _____

10. Business Characteristics: (PLEASE VERIFY OR CORRECT THE INFORMATION WHICH APPEARS ON THE LABEL)

[AFFIX LABEL HERE]

Business Name: (CIRCLE ONE NUMBER)

1 Correct

2 Incorrect (Correct name is: (FILL IN BLANK) _____)

Employees at this location: (CIRCLE ONE NUMBER)

1 Correct

2 Incorrect (Correct number is: (FILL IN BLANK) _____)

Sales at this location: (CIRCLE ONE NUMBER)

1 Correct

2 Incorrect (Correct number is: (FILL IN BLANK) _____)

Please return this form to: HBRS, Inc., 20 Park Plaza, Suite 1220, Boston MA 02116