

# Sheila Bishop

Manager of Business Operations and Development  
Waverly Light and Power

Using IRP Planning in determining EE programs

American Council for an  
Energy Efficient Economy

September 26, 2005



## Insanity:

“Doing the same thing over  
and over again and  
expecting different results”

-Einstein

## Life in Iowa

- Waverly Light and Power

- North central part of state
- Electric only
- 28 full-time employees
- 29.6 MW summer peak
- 123,553 MWH annual sales
- \$9.5 Million annual revenue
- Energy Efficiency programs began 1991
- All Energy Efficiency is voluntary & passive

## EE: A cyclical process

- 1990 Do what?
- 1995 Now we are getting somewhere
- 2003 Do what?
- 2005 Getting somewhere again . . .

The moral: keep your ideas forever,  
sooner or later they come into play!

The 2<sup>nd</sup> moral: Price doesn't matter; power bills do!

## What are we doing to utilize EE as a resource?

- Major item in strategic planning
- Tracking results
- Reduced MW in recent plant

## What are we doing to utilize EE as a resource? (con't)

- Peak? No way
- World Wildlife Fund Power Switch!  
Commitment to reducing demand in our service territory by 15% to reduce the need for building new generation capacity prior to 2020

## Using Integrated Resource Planning in annual operations

- The IRP is the backstop for all EE programs
- Are we being more responsible by building or utilizing an EE program to get there?

## Using Integrated Resource Planning in annual operations

- Analyze each individual program every 5 – 7 years
- Tweak / add / drop
  - Meeting targets?
  - Cost vs savings, remember IRP
  - Customer penetration levels
  - Watch marketing dollars!
  - Customer focus groups/ surveys
  - Intangible: public relations value

## Using Integrated Resource Planning in annual operations

- Annual budget
- Long-term financial forecasts
  - Rebates paid 1<sup>st</sup> priority
  - Capital budget item
    - Sell the rebates!

## Benefits of IRP approach to Utility

- Justifiable
  - Board of Trustees
  - Customers
  - Bond rating agencies
- Pay me to use less?
  - YES !!! let us explain it

# Benefits of IRP approach to Utility

- Local economy vs plant built 'somewhere'
- Public Relations Value
  - Three routine customer contacts
    - Sign up service, monthly billing, interruption

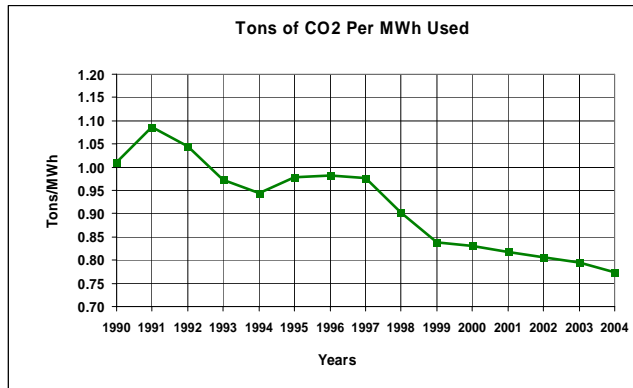
# Benefits of IRP approach to Utility

## Waverly Light and Power Voluntary Greenhouse Gas Reduction Summary

Gross Emissions, TPY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
North Plant	764	2,906	267	382	550	1,200	465	805	1,441	2,111	650	1,154	1,473	1,281	217
South Plant											791	875	1,237	957	137
Hydro															
Wind															
Louisia	36,180	44,084	36,243	45,763	30,404	38,368	52,519	59,818	65,285	68,237	68,035	68,298	72,907	64,486	69,988
Purchased Power	53,653	55,643	69,182	62,248	77,364	75,574	69,592	62,723	63,169	67,123	63,469	64,978	66,995	72,164	67,218
<b>Total</b>	<b>92,567</b>	<b>102,633</b>	<b>105,692</b>	<b>108,413</b>	<b>108,318</b>	<b>116,162</b>	<b>122,576</b>	<b>123,146</b>	<b>129,895</b>	<b>125,470</b>	<b>133,544</b>	<b>135,305</b>	<b>141,511</b>	<b>138,888</b>	<b>136,661</b>
<b>Reductions, TPY</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Hydro	1,106		2,055	2,073	2,842	2,294	1,920	2,263	2,054	2,084	1,809	1,345	-	477	2,209
Wind				41	119	192	113	125	93	2,247	4,469	4,305	6,948	6,900	6,207
Distribution Upgrade	345	345	(68)	780	1,889	1,880	2,512	2,194	1,540	1,388	481	3,223	2,995	2,623	1,996
Low Loss Distribution	71	71	71	71	18	22	27	38	36	30	45	45	45	45	45
Energy End Use Programs	3,644	3,622	7,289	10,933	12,219	12,388	12,467	12,556	12,899	16,329	16,462	16,708	17,578	18,212	19,129
Waste-to-Energy			455	455	455	455	455	455	455	455	455	455	455	455	455
Energy Saving Trees		79	158	237	316	367	413	458	501	537	574	595	628	646	667
Electric Vehicle		1	1	1	1	1	1	1	1	1	1	1	1	1	1
Trees Forever		20	41	81	81	94	106	118	130	137	146	151	159	164	169
<b>Total</b>	<b>5,166</b>	<b>4,628</b>	<b>10,040</b>	<b>14,687</b>	<b>17,744</b>	<b>17,695</b>	<b>18,019</b>	<b>18,252</b>	<b>17,750</b>	<b>23,071</b>	<b>24,393</b>	<b>26,989</b>	<b>28,966</b>	<b>29,365</b>	<b>31,002</b>
<b>Summary</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Net Emissions, TPY	87,401	98,005	95,652	93,720	90,574	98,467	104,557	104,884	112,145	102,399	109,151	108,315	112,545	109,522	105,659
Reduction as % of Gross	5.6%	4.5%	9.5%	13.5%	16.4%	15.2%	14.7%	14.8%	13.7%	18.4%	18.3%	19.0%	20.5%	21.1%	22.7%
Total MWh	86,544	90,155	91,486	95,443	95,998	100,627	106,383	107,420	124,157	122,051	131,285	132,539	139,595	137,918	136,621
Net Tons of CO2 per MWh	1,010	1,087	1,045	0,972	0,943	0,979	0,983	0,976	0,903	0,839	0,831	0,817	0,806	0,794	0,774

## Benefits of IRP approach to Utility

Waverly Light and Power  
Voluntary Greenhouse Gas Reduction Summary



## Benefits of IRP approach to Utility

- Lower Customer Bills
- Money to customers rebates
- Money to contractors finders fees
- Reduced need for generating capacity

## Benefits of IRP approach to Utility

- Providing services customers say they want
- Employment for 1 direct person / 2 other part-time
- Reduction in air emissions and global warming gases

## Benefits of IRP approach to Utility

- Minor drawback
  - Can't sell rebates or energy if needed

## Cost effectiveness vs other supply side options

- Used total of all programs combined for today's discussion
- Patience is required
  - Long-term payback vs a corporation,
    - 1-2 years? Be serious

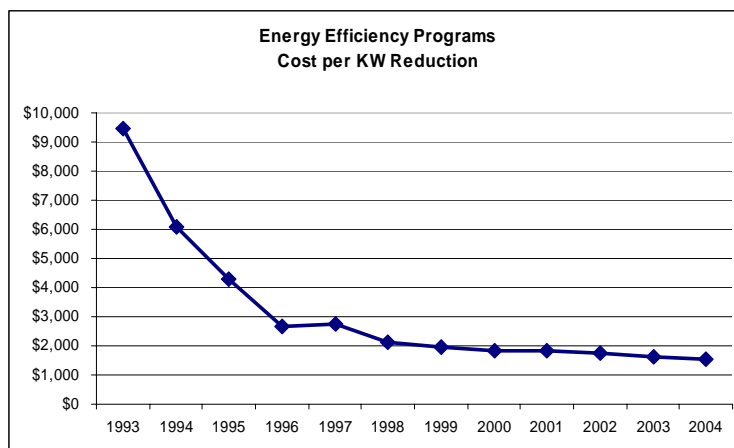
## Cost effectiveness vs other supply side options

- Supply side cost is bottom line
- Delay supply side capital investment
- All measured against next generation unit
  - By program type: peaking, intermediate, baseload

## Cost effectiveness vs other supply side options

- Pick your point
  - When is it more appropriate to build new generations vs operate EE programs?
- The point varies
  - Hour, day, month, year ?
  - Average of all costs?
  - Marginal cost of next unit?
  - How many years expected?
- We use 5-10 year out by type

## Cost effectiveness vs other supply side options



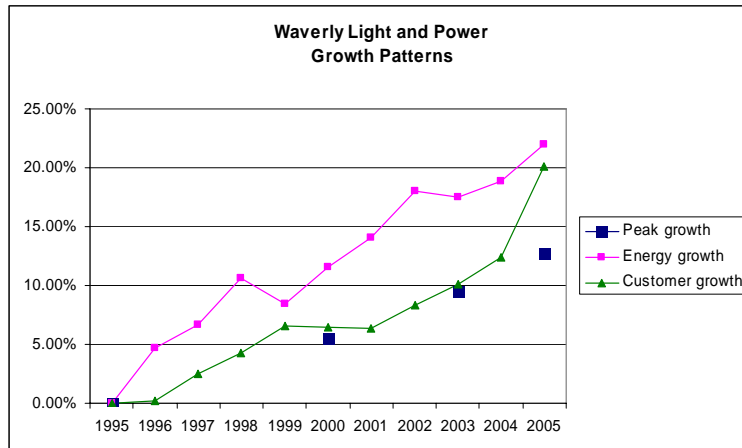
## Cost effectiveness vs other supply side options

All numbers are cumulative to year:	2004
kW cumulative saved	1,333
kWh cumulative	3,372,951
Program costs including loading	
Rebates paid	
Power not purchased	
Reservation charges not used	
Transmission costs avoided	
Good Cents rate reduction	
Total Conservation Costs	\$2,078,198
Conservation cost \$/ kW	\$1,559

## Cost effectiveness vs other supply side options

- Baseload coal \$1,700/ kW
- EE programs \$1,559 / kW
  - In reality we base by program / type of plant
  - Use 5, 10, 15 years forward costs to start new programs

## Does it work? Impact on load growth



## Does it work? Impact on load growth

- Good Cents residential serving 2 customers for every 1 of old
- 2007 coal plant share 3MW
- In 1992 we forecasted 5-7 MW needed by year 2000

## Strategies for the future

- Specific program targets
  - Number of customers, kW saved, etc.
- Go after commercial/industrial
  - Get over 1-2 payback and start saving
    - Utility pay up front; loans to customers

## Strategies for the future

- Develop new programs
  - Pampered Homeowner
  - Heat Pumps
- Don't be scared to change
  - Appliances, windows, HVAC
    - Sizing is our only game after 13 SEER in effect
    - Get old appliances off system
      - Be mindful of public relations value when dropping programs

## Strategies for the future

- Measuring savings
  - Too conservative WLP
  - Too aggressive Iowa Utilities Board
    - Somewhere in between seems reasonable

***Insanity:  
“Doing the Same Thing  
Over and Over Again  
and  
Expecting Different  
Results”  
...Einstein***

Planning for tomorrow  
while providing for today™

**WAVERLY**



**LIGHT AND POWER**

EST. 1904

[www.waverlyia.com](http://www.waverlyia.com)