



Colorado Demand Response Programs

Tim Sheesley
August 3, 2009

Colorado Demand Response

- **Interruptible Service Option Credit (ISOC)**
- **Saver's Switch**
- **Third Party Demand Response**

Demand Response Benefits

- **Utility**

- More effective utilization of existing power plants

- **Rate payers**

- Reduces costs and keeps rates lower

- **Participants**

- Significant rate savings for participation

ISOC Program Description

- **Interruptible Service Option Credit**
 - **Voluntary**
 - **Sign a contract and agree to reduce load**
 - **Receive monthly credits.**
 - **Select Flexible Options**
 - **You decide what areas to control**
 - **The more load you agree to control, the more you'll save.**

ISOC Program Qualification

- **Interruptible Demand over 300 kW**
- **Contract Interruptible Load over 300 kW**
- **Monthly credit based**
 - **Lesser of the Contract Interruptible Load or
Monthly Interruptible Demand**

Features and Options

- **Annual hours of exposure**
 - (40, 80 or 160)
- **Firm Load**
- **Notification prior to interruption options**
 - 1 hour notice option prior to interruption or
 - within 10 minutes notice option.

ISOC Program Credit Example

January 2009 ISOC Credit Calculation

Primary Service

40 hours of annual control

1-hour notice option

Contract Interruptible Load = 500

January Interruptible Demand = 510

40 hour w/1 hour notice winter rate = \$5.54

January Credit = $500 * \$5.54 = \$2,770.$

Annual Credit Est. = $500 * \$71.88 = \$35,940.$

2009 ISOC Credits

	Unconstrained no 4-hr min	Unconstrained 4-hour min	4-hr in 24 hr no 4-hr min	4-hr in 24 hr 4-hour min
Primary				
Summer				
Plan 40	6.98	6.89	6.35	6.26
Opt 40	6.43	6.34	5.84	5.76
Plan 80	8.02	8.02	7.03	6.94
Opt 80	7.34	7.34	6.43	6.34
Plan 160	8.74	8.74	7.39	7.30
Opt 160	7.93	7.93	6.68	6.59
Winter				
Plan 40	5.61	5.54	5.11	5.03
Opt 40	5.17	5.10	4.70	4.63
Plan 80	6.45	6.45	5.65	5.58
Opt 80	5.91	5.91	5.17	5.10
Plan 160	7.03	7.03	5.94	5.87
Opt 160	6.38	6.38	5.37	5.30
Annual				
Plan 40	72.80	71.88	66.28	65.28
Opt 40	67.08	66.16	60.96	60.08
Plan 80	83.68	83.68	73.32	72.40
Opt 80	76.64	76.64	67.08	66.16
Plan 160	91.20	91.20	77.08	76.16

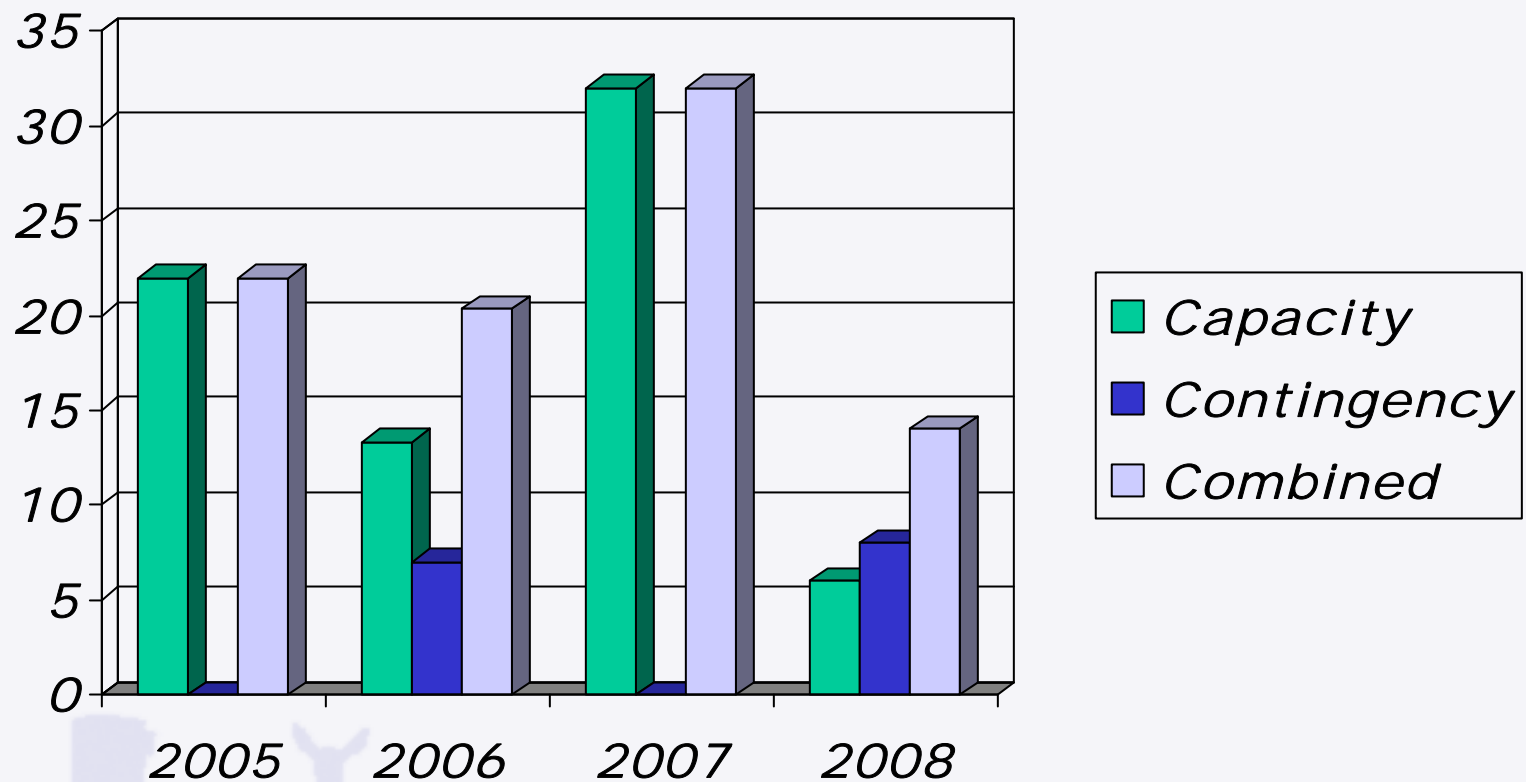
Features and Options (2)

- **Three types of interruptions**
 - **Capacity (mandatory)**
 - **Economic (voluntary with buy-through)**
 - **Contingency (mandatory for within 10 min. option only)**
- **One-year trial period provision**

Economic Interruption

- **Customer has the choice to interrupt or to buy-through**
- **Minimum of four hours**
- **One hour prior notice**
- **Interruption is not mandatory. Buy-through energy is available.**
- **Counts toward annual maximum whether interrupted or buy-through.**

History of Interruptions Hours



ISOC Penalties

➤ **Capacity Interruption Violation**

- **The customer shall pay 50% of expected annual credit times the maximum kW achieved during the event**
- **If customer fails to interrupt twice, the Company shall have the option to cancel their ISOC contract**
- **Cannot re-join ISOC rate for at least one year**

Additional Features added in 2009

- **No History – No Problem**
- **Join before May 31st**
- **Recognize and compensate for growth**
- **Reduced Penalties for short duration violations**
- **Can control EMS for ‘within 10 minute notice’**
- **Can limit interruptions to 4 hrs in 24 hr period**

ISOC

Demand Response

Customers		MW
2007	19	119
2008	18	122
2009	36	172
2010		181

Saver's Switch

- **Company cycles residential customers' air conditioning**
- **Customers get a \$40 annual credit**
- **Program started in 1999**



Operation

- **Cycles in 15 to 20 minute periods**
- **Up to 4 hours per day**
- **Operated during peak hours of 2 PM to 7 PM on weekdays**
- **10 to 15 days per year**



Saver's Switch Demand Response

	Units	MW
2007	88,000	88
2008	100,000	99
2009	120,000	121
2010	139,000	143

Questions

